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JULY 27, 1935

Railway Age

FOUNDED IN 1856

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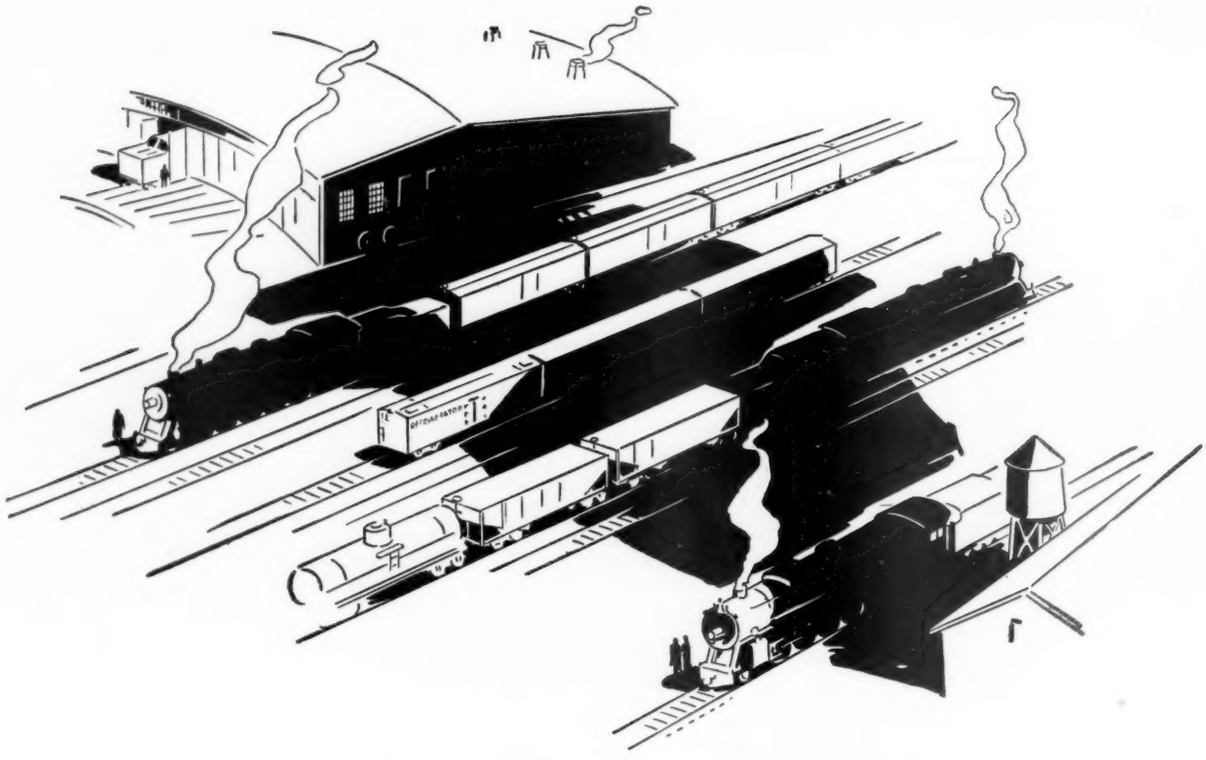

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The Real Issues and the Middle Class

In an editorial in its issue of June 8 the *Railway Age* said, "The Supreme Court's NRA decision probably will prove the best thing for general business and all classes of the people that has occurred since the banks were closed and re-opened in March, 1933, because it makes possible at least a partial resumption of the operation of natural economic forces, which has been for almost two years interrupted by artificial influences." During the four weeks ending July 13, freight car loadings were 7.4 per cent smaller than in 1934 and 9.7 per cent smaller than in 1933. In the week ending July 13, they were 15 per cent smaller than in 1933, and relatively the smallest, excepting in one week, for two years.

Nevertheless, there are indications that an improvement in business will occur during the second half of 1935. Between June 8 and July 18, the Dow-Jones average price of industrial stocks advanced from 114.70 to 123.41, the highest average reached since September, 1931. Even the lagging railway stock average advanced from 31.50 to 33.64. Steel production made a non-seasonal gain from an average of 40.3 per cent of productive capacity in June to 43.0 in the week ended on July 20, and buying was well diversified. Plainly, the destruction of NRA has not caused the confusion and pessimism predicted in some quarters, but apparently has increased business confidence.

Business Prospects and Government Policies

For almost three years now business has been trying to revive in a natural way. For two years this has been prevented by artificial government influences. In an editorial in its issue of July 15, 1933, the *Railway Age* said it was "frankly skeptical regarding the extent to which general business will be either temporarily stimulated or permanently benefited" by the "recovery" policies then being put into effect, and added: "The real problem of continuing the restoration of prosperity is the problem of finding and adopting means that will increase production, commerce and employment in private business. Regardless of what the government may do in the administration of the industrial recovery and public works legislation, the business men of the country will have to find and adopt, in the conduct of their own businesses, the means of maintaining and stimulating the increase in industrial and commercial activity now occurring. The government can help or hinder, but government direction and action can never, until a complete policy of socialism has been adopted, serve as a substitute for private initiative."

The government has very effectively hindered. Without its "recovery" and "reform" policies the trend of business probably would have continued the upward course that it followed, excepting during the banking crisis, from the end of August, 1932, to the end of July, 1933, and the country would now be well out of the depression. Because the government has been determined to revolutionize and run business through a half-baked "planned economy" conceived and administered by novices of socialistic propensities recovery has been halted for two years. This paper anticipates that, freed from the trammels of NRA, general business will improve in the last one-third of 1935 as it did in the last one-third of 1932 and has not in the last one-third of any other year of the depression. But if the anticipated improvement occurs, it will be in spite of government policies. The radicals, and politicians who take orders from them, seem determined to prevent recovery. The struggle between business and government apparently must continue indefinitely.

Reckless Expenditures and State Socialism

The nation is confronted with political and economic issues that are vital and fundamental. What those issues are becomes plainer daily, and evidently they must be fought out in the next national political campaign. One of them is state socialism versus private enterprise. Another is unbridled extravagance and ruinous taxation in government versus economy and sane taxation. These two issues are inextricably involved, because both are raised by policies promoted ostensibly to benefit the "masses" at the expense of the "classes." The railroad pension act and NRA have been held unconstitutional by the Supreme Court. Nevertheless, much other legislation, which seems plainly in controvention of the Constitution, has been passed or is proposed. There is an evident purpose to create sentiment for radical changes in the Constitution by forcing the Supreme Court to hold unconstitutional numerous acts passed ostensibly for the benefit of the "masses."

Excessive and unproductive expenditures for "made-work" and relief increase, and are creating a class that is expected to vote only for politicians that promise bread and circuses without work. "Share-the-wealth" taxation measures are being promoted to reduce large individual fortunes and incomes, to destroy big business units, and, ostensibly, to raise money to apply on the vastly increased national debt being created by huge "emergency" expenditures. The Railway Labor Executives' Association is advocating government ownership in the ostensible interest of the "masses," and particularly of railway employees. The government will go ahead, unless stopped by the Supreme Court, making vast investments in power plants to compete with private enterprise.

These policies and proposed policies apparently have

both an economic and a political purpose. The economic purpose is to transfer wealth and income from the rich to the poor. The political purpose is to array the poor on one side and the rich on the other. The masses, it is assumed, can out-vote the classes; and they are to be influenced to vote for men and policies that will so change the present government that it will become the owner and manager of a great part of all industries, will in large measure direct the management of business that remains privately-owned, will destroy large fortunes and incomes by taxation, and will by these and other means see that the masses get a much larger share of the national income. In summary, we are to have political and economic government, not "of, by and for the people," but of, by and for the "masses"—the "proletariat," as the French call them.

Who Gets the National Income?

This program raises some interesting questions, both economic and political. The nation is not actually divided into rich and poor. In 1929, according to the best estimates we can make, the "wealthy"—that is, persons with incomes over $25,000 annually—received 18 per cent of the national income; persons with incomes between $1,500 and $25,000 received 53 per cent of it; and persons with incomes under $1,500 received 29 per cent of it. Radical changes have since occurred. The total national income is now less than half as large as in 1929. On the basis of the inadequate data available, we estimate that in 1934 persons with incomes over $25,000 received only about 7.4 per cent of the national income, or approximately $3,340,000,000; persons with incomes of $1,500 to $25,000 about 66 per cent of it, or approximately $30,000,000,000; and persons with incomes under $1,500 about 27 per cent of it, or approximately $12,000,000,000.

The expenditures of the federal government alone for the fiscal years ended June 30, 1934 and 1935, were $7,000,000,000 annually, and for the fiscal year ended June 30, 1936, are estimated at $8,500,000,000. All of the aggregate income of persons now receiving over $25,000 would not pay one-half of the present annual expenditures of the federal government alone, or one-fifth of the current annual total expenditures of the federal, state and local governments. It may be said that the wealth and incomes of the wealthy will increase as prosperity is restored, and that more taxes can then be derived from them. They must increase their wealth and incomes, if at all, principally by getting larger returns from investments. How are they to get larger returns from investments if the government is going greatly to increase its taxation of both their present capital and the incomes from which they would otherwise make savings to increase their investments?

But the most important fact to which the foregoing figures call attention is the existence of the "middle class." It consists of persons having incomes from $1,500 to $25,000 a year. They received 53 per cent of the national income in 1929. Decline of their incomes since then has pushed many of the formerly "wealthy" down into this middle income class, and in consequence in 1934 the middle class had 66 per cent of the national income, or an aggregate income almost ten times as large as the wealthy. The wealthy, with less than one-thirteenth of the national income, at present, cannot possibly be taxed enough to pay current huge government expenditures or the national indebtedness they are piling up. But the "middle class," with at present two-thirds of the national income, can be taxed enough. Obviously, then, if government spending on the present scale for "made-work" and relief is to continue long, the great middle class, not the wealthy, is going to pay most of the bill.

And how about "social security" policies of levying large taxes for old age pensions and so on? The middle class with two-thirds of the national income, obviously is going to pay the bulk of the cost of these policies, too. And whose businesses is it that the government is going to become owner and manager of? Whose businesses is it going to engage in competition with? Whose businesses is it going to deliver largely into the control of the labor unions through the Wagner industrial disputes bill, if the Supreme Court does not stop it? As the middle class at present has ten times as large an aggregate income as the wealthy, and therefore obviousiy owns the bulk of the property of the country, it is mainly its business that the government, in the interest of the "masses," is going to take over, or engage in competition with and try to deliver largely into the control of the labor unions under the Wagner bill.

The entire program is only ostensibly one for the benefit of the "masses" at the expense of the rich. It is a wholesale attack upon the middle class. This great class, which includes most skilled workers, has committed the crime of using its superior intelligence, industry and thrift to accumulate property and get jobs which enable it to secure incomes, under present conditions, from $1,500 to $25,000 a year. Its accumulations and incomes are to be raided for the benefit of the less intelligent, industrious and thrifty "masses" by a government presumably of, by and for the "masses" and of, by and for politicians who are to win the votes of the "masses" by socialistic appeals to their selfishness and envy.

Suppose the Middle Class Awakens?

But suppose the middle class awakens to a realization that the proposed policies, if carried out, will be principally at its expense? This seems likely to occur, in view of the recent great change in public sentiment regarding the "New Deal." Will we then have a political campaign in which the middle class will be arrayed against the masses? The outcome might then be quite different from that of a campaign in which the wealthy and the masses were arrayed against each other, and the middle class divided its votes. And suppose that in a political struggle between the middle class and the masses the latter won. Would the middle class yield to economic exploitation by a government con-

trolled by the masses? It did not in Italy or Germany. It established fascism and nazism by force in Italy and Germany principally to prevent this. There are now no labor unions in those countries. The leaders and members of labor unions are not the only persons who can use force.

But if the middle class yielded and state socialism were established, who would then manage business? It is now managed principally by the middle class and by business leaders, directly and indirectly selected by it. Presumably it would be managed then principally by politicians elected by the masses and by men selected by these politicians. The politicians would hardly select the men who manage business now; and if they did, these men would be deprived of all power, opportunity and incentive to manage it well. What reason is there for believing that if it were not managed as well as now it would produce as large incomes even for the "masses" as it does now? Never under any other political and economic system, whether under conditions of prosperity or depression, have the masses got as large incomes as under the prevailing political and economic system of the United States.

Ruthless Labor Union Attacks on the Railways

This picture of the masses and their politicians seeking to get control of government and use its power to exploit the middle class through state socialism and excessive taxation may seem exaggerated and fanciful. But consider what actually is happening as regards the railways. At a time when railway gross earnings are 47 per cent less than in 1929 the labor leaders have succeeded in re-establishing a scale of wages higher than in 1929. Owing to this conjunction of low earnings and high operating costs, and in spite of the most drastic retrenchments, railway net operating income is 67 per cent less than in 1929. In consequence, a new high record of railroad bankruptcies recently has been made. The previous high record was made in 1894 when, owing to the depression of the nineties, 40,819 miles of railroad, or 23 per cent of the total mileage of the country, was in receivership. The mileage of railroads which now admit, in one way or another, their bankruptcy, is 67,142, or 26 per cent of the total mileage. Their investment is $4,674,167,716, or 18 per cent of total railroad investment; their funded debt $2,984,572,006, or 20 per cent of total railroad funded debt; their stock $1,632,279,118, or 16 per cent of total railroad stock. Numerous other railroads are actually bankrupt and being saved from the necessity of admitting it only by government loans.

Are the leaders of the railway labor unions satisfied with what they already have contributed toward bankrupting the industry by which their members are employed? Far from it. They are at present insisting upon the passage by Congress of eight bills the cost of which, if enacted, would be more than $750,000,000 annually, even on the basis of the present depressed volume of traffic and earnings. The Supreme Court held unconstitutional the pension bill they got passed. They are pressing now for passage of another pension bill drafted to evade the constitutional objections made by the Supreme Court to the former one. Its cost, if enacted, would be, it is estimated, $60,000,000 the first year and would increase to $200,000,000 a year. Other measures being promoted by them include a six-hour day bill, a train limit bill, a full crew bill, an hours of service bill, a track and bridge inspection bill, a signal device bill and a train dispatching bill. In addition, the leaders of most of the unions are advocating government ownership. Never in history did any group of men exhibit a more callous, reckless and ruthless determination to destroy a great industry.

A Labor Union Attack on the Middle Class

What class of persons are they actually attacking? The middle class being the recipient of two-thirds of the present national income, obviously it is directly and indirectly the owner of the great bulk of all the railroad bonds and stocks the value of which would be utterly and irretrievably destroyed by passage of the legislation the labor leaders are seeking. And how about the effect of government ownership upon the middle class? Its adoption plainly would result in the incurring of a huge annual railroad deficit. As the middle class receives two-thirds of the present national income, it would obviously have to pay most of the taxes to meet this deficit. If heads of labor unions and other real or supposed leaders of the masses will, under our present political and economic system, so recklessly and ruthlessly attack the middle class as they are attacking it now with their programs of railroad confiscation and government ownership, what is it reasonable to expect they would do to the middle class if they succeeded in attaining complete control of the government?

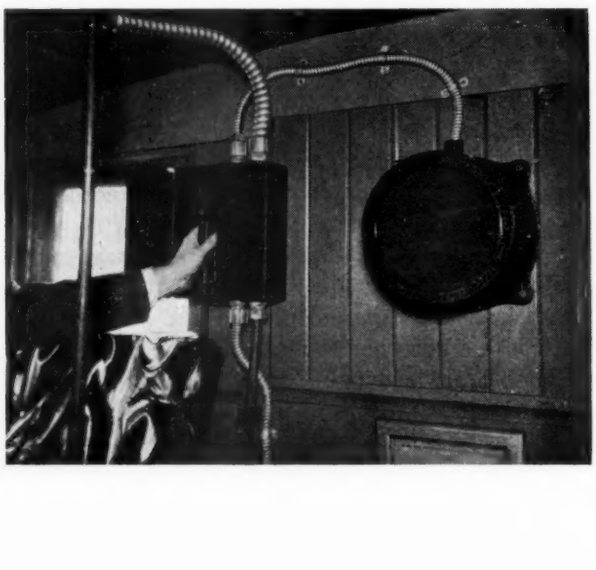
The communists of this country and the world should be well pleased with what the radicals of the United States have succeeded in accomplishing during the last two years. They have prevented recovery and thereby created a huge pauper class which it is assumed can be relied upon to vote for the politicians that promise to provide it most liberally with bread and circuses. They have succeeded in large measure in arraying class against class in the true communist spirit. But they have not yet succeeded in precipitating a struggle merely between the rich and the poor. What they are actually doing is arraying the paupers and the thriftless generally against the middle class. When the real struggle comes over the issues being raised it will speedily be found that millions of persons receiving small incomes, but ambitious for larger incomes and for opportunity for their children, will array themselves with the middle class. Present the real issues and the facts relative to them squarely to the American people in a national election, and the radicals who are trying to establish a government of, by and for the proletariat will be so overwhelmingly defeated that the same issues will not be presented again for at least another generation. They were presented less directly and clearly in the political campaign of 1896. The outcome will be the same when they are presented more directly and clearly.

Ultra Short Wave Radio for Caboose to Engine Communication

By H. A. Shepard, Gen'l Supt.
Electric transmission and communication.
New York, New Haven & Hartford

and W. C. Evans, Manager
Radio Division
Westinghouse Elec. & Mfg. Co.

Above—Location of Transmitting Equipment on Locomotive Tender.
Below—Location of Microphone Control Box and Loud Speaker in Cupola of Caboose



ULTRA short wave radio has been used in test on the New York, New Haven & Hartford to provide direct two-way communication between the engine and caboose of long freight trains; relatively simple equipment is required.

This problem of communication has been discussed and worked on by radio and railroad engineers for more than ten years. If the problem had been merely that of supplying a communication system, it might have ended without the extensive research and development work that has been carried out during the past few years; however, the complete problem is, as it ever has been, one of supplying economical and reliable communication through a medium that can be assigned freely or licensed, and with equipment easily installed and serviced. Of mediums at present within our control, radio seems to offer an advantageous solution for general use because it requires equipment at only two points for a given train installation. And in radio, ultra short waves are now favored because of the reduction in total equipment, cost and size and the possibility of free allocating of wave channels they present.

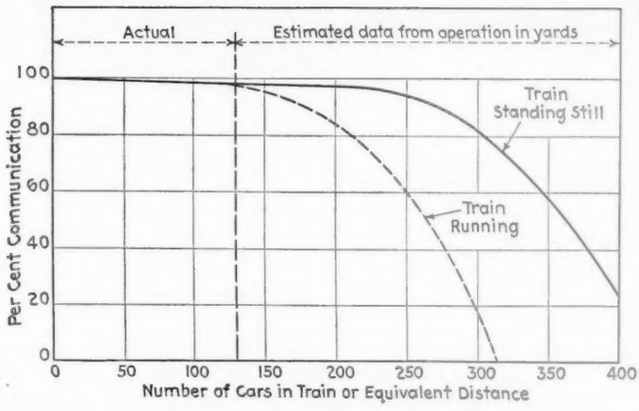
Demonstration on the New Haven

For purpose of demonstration a locomotive and a caboose were equipped with short wave radio sending and receiving apparatus. An additional loud speaker and microphone were installed in a coach, hauled at the rear of the train so that a large number of persons might participate. The test was made on a run from Springfield, Mass., to New Haven, Conn.

"Air O. K." was reported by radio to the locomotive forty-three cars ahead and the trip started at 10:40 a.m. As the train left Springfield, the radio engineer riding the locomotive proceeded to introduce, one by one, by the medium of the radio, those persons attending the demonstration. The introduction of each was distinctly heard by all in the coach and each responded as he was introduced. These introductions were used to demonstrate the intelligibility of transmission. There was no fading; the signals were clear, and the background noise was well below an interfering value.

At Hartford, Conn., the train pulled into the freight yard and, with the aid of the radio, the engineer quickly stopped the train when it was announced that the caboose had cleared the main line. The engine was disconnected and eighty-six cars added to the train. Again the radio was used to considerable advantage to inform the engineer of the relative distance between couplings as the new section of cars was brought up for connection to the section from Springfield. The locomotive was

Antenna Installation on Locomotive



Ratio of Signal Strength to Distance from Transmitter

around a curve and out of sight during this maneuver, whereas those in the caboose had full view of the two sections of the train at the point where they were coupled together.

During the time that the cars were being added, the air pressure at the caboose had dropped to about 30 pounds. After the new section had been added, the engineer was informed promptly when the caboose pressure indicated 65 pounds and the 129-car train immediately started for New Haven. The train was in motion eight minutes after coupling.

With the exception of a short dead spot occurring in the middle of the tunnel at Hartford, there was continuous communication in both directions throughout the entire trip. At points along the road where the highway closely approached the tracks, there was noticeable pickup of automobile ignition systems. This did not interfere, however, as the amount of pickup was always greatly reduced when signals were being received from the locomotive. This reduction is the result of an automatic volume control in the radio receiver which allows the sensitivity of the receiver to be greatly increased when there is no carrier signal being received from the locomotive.

At the conclusion of the trip in the New Haven yard, the engine was disconnected from the train and removed to the far end of the yard, about two and one-half miles distant. Throughout this distance, two-way communication was carried on between the caboose and locomotive as easily as when the latter was connected to the train. The fact that the engine had been transferred to tracks other than the one on which the train and caboose were standing made no noticeable difference in the signals.

The complete absence of interference from nearby electrical circuits was of particular interest. The overhead trolley system in the electrified zone near New Haven appeared to have no effect on the transmission and reception of these ultra short waves. On a previous demonstration on which only New Haven representatives were present, the equipment was operated between New

Antenna Installation on Cupola of Caboose

Haven, Conn., and Maybrook, N. Y., and passed through the electrified zone from the Cedar Hill yards to Devon, Conn., a distance of 14 miles, without interference from the electric system. Fading was not evident as the train passed other trains or steel cars along the tracks.

Improvements in Train Service Made Possible

The use of any communication system, we believe, will improve the efficiency of freight train operation. It has the effect of greatly increasing the engineer's range of vision because conditions affecting the rear portion of the train, which is only visible to the conductor and brakeman in the caboose, can be instantly relayed with such completeness to the engineer as to make their vision part of his.

At present, the only means of stopping a long freight from the rear is by releasing air at the caboose. This obviously results in the application of brakes first at the rear of the train, sometimes causing locking of the wheels and damage to the rolling stock. Also, there is always the danger of pulling the train apart through the use of brakes in this manner. A communication system avoids all of this by placing complete control of the train's motion in the hands of the engineer on the locomotive.

There are many occasions on which the need for having to stop a moving freight train is known only to those riding in the caboose. A dangling brake rod or a hot box in the middle of the train is seldom noticed by the engineer or employees along the right-of-way

until after the locomotive has passed. The quick and easy stopping of the train when trouble is perceived is essential.

In considering the advantage of radio in the operation of freight trains, we believe the crew of SN-5 will long remember the incident at Meriden, Conn., when fire broke out in the sixth car ahead of the caboose. The conductor observed smoke coming from the car and upon checking the bills of lading, ascertained the contents of the car. The train was traveling at about 30 miles per hour and had not yet entered the city of Meriden. The conductor, knowing the damage that might result from the fire, called the engineer and ordered the train to be stopped. Through the use of the radio, the engineer was advised exactly where to stop so that the caboose would be adjacent to a railroad telephone. The train dispatcher was called, the Meriden fire department ordered out, and permission secured to open the troubled car. With these details completed, the train continued a few miles until it reached Meriden where the burning car was quickly disconnected from the train and placed on a convenient siding where the Meriden fire department was waiting with complete fire-fighting equipment. Quick handling of the train resulted in saving the contents of the car and less damage to the car itself.

In addition to providing communication service between engine and caboose, radio may also be used to advantage in furnishing communication service between fixed points, such as signal stations, and moving freight trains. By making installations in signal stations, or other fixed points similar to the installations in engines and cabooses, and by relaying messages at signal stations via radio to and from moving freight trains and via regularly established telephone dispatch and message circuits, the radio service could be made a part of a railroad company's general telephone system. Required communications between divisional headquarters or signal stations and moving freight trains during the time that freight trains are within a few miles of these fixed points could be handled, thus eliminating the use of hoops for conveying information to moving trains and establishing a flexible two-way communication service.

Other applications of ultra short wave radio to train operation might be the use of a small portable transmitter-receiver combination, worn on a belt by the brakeman or conductor. Such equipment, one for example measuring only six inches square and one inch thick, has been demonstrated as capable of transmitting and receiving from points along the train to either engine or caboose.

Hump yards, likewise, have a need for a suitable communication link between the hump and the locomotives.

Railroad Radio Telephone Ten Years Old

Railroads have considered the use of radio for communication purposes for more than ten years. About 1924, tests were made on the Norfolk & Western and Virginian railroads in connection with the electrification of those roads by Westinghouse. In these tests, the carrier current method of communication was used with antennas on the top of the train near the trolley wire. This equipment used long waves or low frequencies, as is customary in carrier current practice on power lines. This method, however, did not seem readily adaptable at that time to the steam roads, and it was felt that straight radio would have a more universal application.

About this time, the Federal Radio Commission assigned a number of frequencies for railroad radio service in the band between 109 and 133 meters that was allocated for mobile application. Accordingly, in 1927 and 1928, extensive tests were conducted with considerable success on several railroads, using straight radio communication at about 120 meters. The results were so satisfactory that a commercial installation was made for hump yard service at the new yard of the Big Four Railroad, near Cincinnati.

Why Earlier Equipments Were Abandoned

When radio was first applied to railroads, wave lengths between 109 and 133 meters were used. Radio equipment designed to operate on this wave length had to be made to operate at rather high power. For example, the transmitter on the Virginian Railway in 1925 had three 50-watt transmitting tubes. Naturally, with this higher power, the equipment had to be larger and its cost and maintenance much greater than was believed desirable at that time.

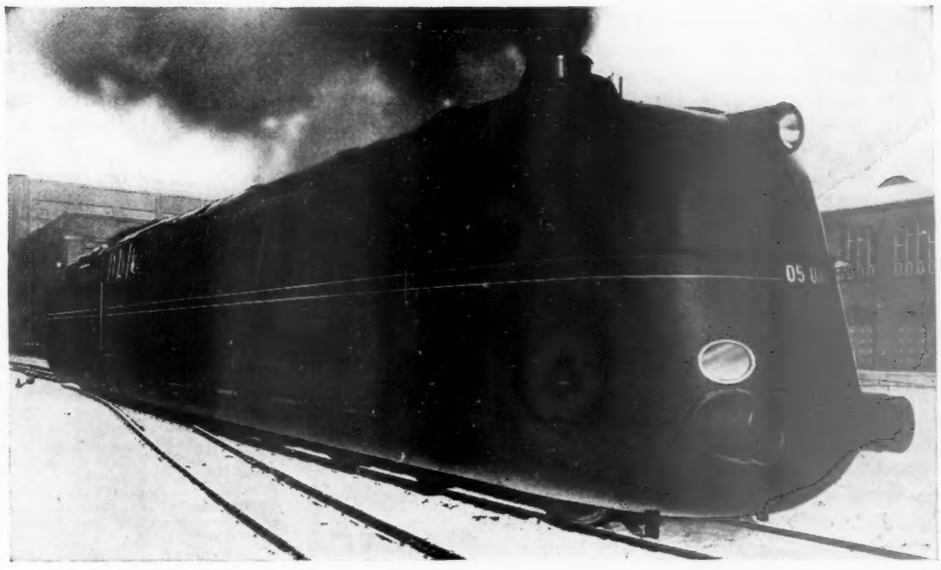
In addition the radio industry was growing rapidly and attention was centered on the mass production of equipment for entertainment purposes. Without the combined interests of the railroads and the manufacturers, the subject was given only passive treatment and fell by the wayside. Also about this time the new aviation industry was clamoring at Washington for operating frequencies of about this same value in the mobile band, and the Federal Radio Commission decided that the railroads had failed to show either public need or real desire for the radio frequencies already allotted to them. They therefore withdrew these allocations until such time as the railroads could show real need for reasons of public interest, or could find a band of frequencies not urgently needed for other services. This retarded railroad radio development and no further work was done until recently, when the technique of utilizing ultra high frequencies for this purpose was perfected.

Ultra Short Waves and Federal Legislation

The wave lengths below ten meters, that is, above 30,000 kilocycles, are now classed as experimental and it was suggested that the railroads try to use them, as in some ways they are particularly applicable. These ultra short waves travel very much in the manner of light and do not follow the curvature of the earth or spread around intervening objects, as do the longer waves used for broadcasting. This means that their range is limited. With elevated antennas, quite considerable range can be obtained, but with lower antennas only a short range is possible. Intervening objects are not necessarily complete shields, and even with low antennas there is no great difficulty in covering a limited number of miles with these ultra high frequencies. This makes them entirely suitable for local service, as between the two ends of a freight train, and has the added advantage that the same frequency can be used simultaneously in many different places without any likelihood of interference, unless the stations are within a few miles of each other.

The fact that these ultra short waves can be received only within a few miles, regardless of transmitter power, makes them ideal for railroad service. A few wave band assignments by the Federal Communications Commission would probably be adequate for the entire railroad industry. However, the Commission has withheld any permanent assignments of these ultra high frequencies to specific classes of service because they have not been convinced as to how these waves can be used to the best public interest. In order to obtain permanent assignments, the railroads must show and demonstrate the need for radio communication on these wave lengths,

(*Continued on page 119*)



The German Streamlined Locomotive Which Reached a Speed of 119 Miles Per Hour on a Trial Run

German Streamlined Locomotives Attain High Speeds

New three-cylinder 4-6-4 type locomotives built by Borsig Locomotive Works meet all expectations

AMONG the steam locomotives recently built, those constructed by the Borsig Locomotive Works for the German State Railway are justly receiving a considerable amount of attention. Two of these locomotives have now been delivered and are being tried out in test services. They are of the 4-6-4 type, fully streamlined for heavy passenger service, carry 284 lb. boiler pressure and have three 17 11/16-in. by 26-in., single-expansion cylinders. The driving wheels have a diameter of 90½ in.

These locomotives, designated as Series 05, were designed to haul four heavy, or five light, coaches, carrying from 200 to 300 passengers and weighing 250 metric tons, or 275 tons of 2,000 lb., at a sustained speed of 93 m.p.h., or 109 m.p.h. maximum speed. On preliminary test runs the first of these locomotives, when hauling the specified tonnage recently attained a speed of 112.4 m.p.h. on the Berlin-Magdeburg line, while the second locomotive reached a speed of 119 m.p.h. on a run between Berlin and Hamburg. The rated tractive force on an 85 per cent basis is 32,600 lb. and the anticipated horsepower is 2,764, indicated.

Although strikingly modernistic in appearance and more completely streamlined than any previous steam locomotive, the contour lines of the encasing jacket were carefully worked out by wind-tunnel tests of models followed by dynamometer road tests of an old locomotive on which a streamlined jacket of the indicated form had been fitted. As will be noted from the illustration the shrouding has been carried down almost to the rail and covers up the running gear and motion work, sliding covers being provided for the necessary inspections and lubrication of running gear and motion work. When the design was first proposed there was some anxiety in regard to the possible heating of bearings resulting from their enclosure and consequent elimination of cooling by direct air currents. In order to determine the effect of such enclosure the preliminary tests included runs with running gear and bearings open to free air circulation and then with full enclosure. The trials were most reassuring as the rise in bearing temperatures was only a few degrees and no difficulties of any nature were experienced. This experimental locomotive was also fitted with a parabolic cap on the smokebox and the cab was given a tapered form. The tests showed a saving of from 500 to 700 hp. at a speed of 87 m.p.h. due to streamlining. A part of this saving, however, may have been due to a decreased heat loss from the cylinder and steam chest walls.

The striking appearance of these locomotives is accentuated by the use of color, the first one being painted a Bordeau red. A narrow running board with a dark band of color underneath set off by a narrow line and the stripe carried across the cab and along the tender gives a pleasing relief. The shrouding gives the locomotive a very smooth appearance, almost free from projections. The cab is well molded into the shrouding; the gap between engine and tender is practically closed. The tender is also streamlined with a curved skirting covering the running gear and reaching almost to the rail and with sliding covers over the coal bunker which project the lines of the cab roof. A vestibule connection is also provided between the tender and the first coach of the train. The whistle is located in front of the stack.

The Boiler

The shell of the boiler is formed from two sheets, 11/16-in. thick, of 0.4 per cent molybdenum steel having

a tensile strength of from 78,000 to 80,000 lb. per sq. in. The inside diameter at the front tube sheet is 74 13/16 in. The dome has only a very small projection. Due to the large driving wheels the center line of the boiler is 10 ft. 4 13/16 in. above the rail and the height to top of stack is 14 ft. 11⅛ in.

There are 106 tubes, 2¾ in. outside diameter, and 24 flues, 6.73 in. outside diameter. The distance between tube sheets is 22 ft. 11 9/16 in. The firebox is of copper, 66¾ in. wide and 109¼ in. long, with a flat crown. This provides a grate area of 50.6 sq. ft. Heating surfaces of the boiler measured on the fire side in accordance with European practice, instead of on the water side as employed in this country, are 200 sq. ft. for the firebox and 2,554 sq. ft. for the tubes and flues. The calculated evaporative capacity of the boiler is 33.070 lb. water per hour. Each flue contains six superheater elements, 1.14 in. outside diameter. This provides 968 sq. ft. of superheating surface. Hand firing is employed, but an air-operated fire door is provided.

An exhaust steam feedwater heater of the closed type is provided. The heater has 144 sq. ft. of surface and is located in a recess in the top of the smokebox back of the stack. The turbo generator is located in a similar, but smaller, recess between the heater and the superheater header. The throttle is of the dome type. The smokebox is of rather unusual length, being 13 ft. 1¾ in. long.

Driving and Running Gear

The three-cylinder, single-expansion type of engine was adopted to insure smooth running at high speeds. All three cylinders are of the same size, 17 11/16 in. by 26 in. The outside cylinders are connected to the middle pair of wheels by main rods 13 ft. 11 5/16 in. long, while the inside cylinder is connected to the leading crank axle by a main rod 6 ft. 6¾ in. long. The middle cylinder is set 4 15/16 in. forward of the outside cylinders. The piston valves are 11¾ in. diameter and have a maximum travel of 7 1/16 in. The valves are operated by Heusinger or Walschaert gears, an independent gear being used for the inside cylinder. The second axle is cranked to furnish movement to the expansion link, the crank throw being 15¾ in. Reciprocating parts are of light construction and with this in view the valve-gear rods are of I-section. Guides are of the single-bar type. A hand reverse gear of the screw type is employed.

Frames are of the bar type, 3 9/16 in. thick, with the usual cross braces. Welding was rather generously employed in building up the completed frame structure.

The weight of the locomotive in working order is 286,000 lb., of which 126,700 lb. is on the six 90½-in. drivers, 73,800 lb. on the front truck, and 85,500 lb. on the trailing truck. The wheel base of the locomotive is 45 ft. 7¼ in., the rigid or driving wheelbase being 16 ft. 8¾ in. The tender wheelbase is 19 ft. 4¼ in., the total wheelbase of locomotive and tender is 72 ft. 5⅛ in., and the length overall is 86 ft. 2 in. The engine truck has a wheelbase of 7 ft. 8½ in., and the trailing truck 6 ft. 6¾ in. All truck wheels are of the steel tired type, 43⅜ in. tread diameter. Journal bearings are of the inside type for the front truck and the outside type for the trailing truck. All truck bearings are of the pivoted roller-bearing type. Driving-axle bearings are of the plain type, all 9 1/16 in. by 11 in.

The Tender

The tender weighs 84,000 lb. empty, or 190,800 lb. loaded. It has a capacity for 11 tons of coal and 9,650 U. S. gallons of water. The wheel arrangement is rather unusual, the forward part of the tender being carried on a four-wheel truck having 43⅜-in. wheels and a wheelbase of 5 ft. 11 in., while the rear portion is carried on three axles provided with boxes held by pedestals which form a part of the tender frame. Roller bearings are used on all tender axles. The tank is of the built-up type with numerous cross braces, all sheets, braces and frames being joined together by welding.

As the coal bunker is covered by three sliding curved plates which are pushed back only when taking on coal, the coal space is not accessible for the fireman when the engine is running. For this reason two automatic horizontal coal pushers are provided, these being moved by compressed air cylinders located on the rear end of the tender.

Table of Dimensions and Weights of the German State Railway 4-6-4 Type Locomotives

Railroad	German State Ry.
Builder	Borsig Lokomotiv-Werke
Type of locomotive	Streamlined 4-6-4
Road No.	05-001
Service	High-speed passenger
Train weight	275 tons
Cylinders, diameter and stroke	3—17 11/16 in. by 26 in.
Valve gear, type	Walschaert
Valves, piston type, size	11¾ in.
Maximum travel	7 1/16 in.
Weights in working order:	
On drivers	126,700 lb.
On front truck	73,800 lb.
On trailing truck	85,500 lb.
Total engine	286,000 lb.
Tender	190,800 lb.
Wheel bases:	
Length over buffers	86 ft. 2 in.
Driving	16 ft. 8¾ in.
Total engine	45 ft. 7¼ in.
Total engine and tender	72 ft. 5⅛ in.
Wheels, diameter outside tires:	
Driving	90½ in.
Front truck	43⅜ in.
Trailing truck	43⅜ in.
Boiler:	
Steam pressure	284 lb.
Fuel	Coal
Diameter, first ring, inside	74 13/16 in.
Firebox, length and width	66¾ in. by 109¼ in.
Tubes, number and diameter	106—2¾ in.
Flues, number and diameter	24—6¾ in.
Length over tube sheets	23 ft.
Grate area	50.6 sq.ft.
Heating surfaces (fire side):	
Firebox	200 sq.ft.
Tubes and flues	2,554 sq.ft.
Total evaporative	2,754 sq.ft.
Superheating	968 sq.ft.
Feedwater heater	Closed type
Tender:	
Water capacity	9,650 U. S. gal.
Fuel capacity	11 tons
General data estimated:	
Rated tractive force, 85 per cent	32,600 lb.
Cylinder horsepower, estimated	2,764 hp.

The Brakes

In view of the high operating speeds particular attention was given to the design of the brake mechanism and all its parts. With the exception of the two front wheels of the locomotive truck, all other carrying wheels of the locomotive, the driving wheels and the tender wheels are provided with clasp brakes. On the front truck the braking ratio is 50 per cent on the leading axle and 80 per cent on the trailing axle. On the drivers, the trailing truck and the tender wheels the ratio is 180 per cent. All truck and driving-wheel brake shoes are of the twin type which may be best described as two separate center-fastened unflanged shoes mounted tandem in a single brake head. Clasp brakes for the driving wheels are obtained by the employment of an ingenious, yet simple, form of compound levers, one arm of which carries the brake shoe for the front side of one wheel, the contact being well below the center of the axle and the other arm the brake shoe for the back side of the

wheel ahead which contacts the wheel well above its center line.

The front truck is fitted with two brake cylinders, one cylinder to operate the brake shoes on the back side of the leading wheels and the other to operate the clasp brake on the trailing axle. On the trailing truck two brake cylinders connected by equalizing levers operate the eight brake shoes.

The braking pressures on the locomotive and tender are controlled by automatic regulators in accordance with speed and brake-shoe friction. In addition, the tender is provided with an automatic device that also adjusts the braking to suit the varying loads of coal and water.

The brakes are capable of stopping the locomotive from a speed of 107.8 m. p. h. in a distance of 3,280 ft., or within the spacing of distant signals. The locomotive is also fitted with automatic train control of the inductive type which is widely used in Germany.

The next high-speed streamlined locomotive which is now being built will be arranged to burn pulverized coal. In this locomotive the cab will be located at the front end ahead of the smokebox.

Eastman Asks More Study of Pension Legislation

Still hopes for constitutional plan but believes present proposal ill-advised

WASHINGTON, D. C.

HEARINGS on the railroad pension bills proposed by the Railway Labor Executives' Association, before Senator Brown of New Hampshire, as chairman of a sub-committee of the Senate committee on interstate commerce, were concluded on July 22 with a statement by Co-ordinator Eastman opposing them, with a caution against "hastily drawn legislation which would lead to further disillusion and disappointment, especially among railroad employees." Mr. Eastman made it clear that he did not oppose special retirement and annuity legislation for the railroad industry but believed it to be essential and that it would be a help to the railroad industry. He was of the opinion that "legislation at this time would necessarily be hasty and ill-conceived; that the enactment of the particular bills now under consideration would not be to the interest either of the employees or of the carriers; and that further study is needed to prepare a plan which would meet the needs of the situation."

The Co-ordinator's views were expressed in a letter to Chairman Wheeler of the committee, dated July 17, and amplified in reply to questions at the hearing. He said he still hoped it would be possible to devise a pension plan that would be approved by the court but that "the total volume of evidence, including the results of the comprehensive study by my staff, soon to be released, seems to me still insufficient to prove that a special retirement system for railroad employees is socially and economically sound."

He had reached the conclusion that the decision of the Supreme Court holding the railroad retirement act unconstitutional, although on a question of law was fundamentally based on the facts, and that if a thorough study were made of the facts it might be possible to bring before the court a bill better fortified than that of last year, which he had also opposed at the time as being hastily drawn. He thought that the promotion of safety and efficiency was an appropriate purpose for the exercise of the power to regulate commerce but that the court had reached the conclusion on the facts before it that the law did not accomplish that purpose.

He also questioned the wisdom of enacting a pension plan for a special class of employees "inadequately articulated" with the old-age features of the social security bill which applies to employees generally. He pointed out that at the outset under the social security bill railroad employees would receive more in benefits than the railroad industry would put in, at the expense of other industries, and said also that serious consideration should be given to the question of public policy involved in extending benefits to one industry at the expense of general taxation, since the railroad bills under consideration provide for a greater cost under S. 3151 than the amount of the proposed tax on railroads and their employees under S. 3150.

Mr. Eastman said his own organization was not properly equipped for making the investigation necessary to show the relation between pensions and efficiency and safety as convincingly as it might be done by a special commission such as that proposed in the Rayburn resolution recently recommended by President Roosevelt. E. A. Krauthoff, counsel for the Railway Labor Executives' Association, asked Mr. Eastman if it would not be a good plan to proceed without delay to get the legal questions on the way to the courts with the idea that the investigation would develop the necessary facts by the time they are needed, but Mr. Eastman remarked that this appeared to be a suggestion that "the law be passed now and investigated later in the hope that the investigation would produce what you want." He said the labor organizations had merely taken last year's bill and split it into two parts, in the hope that it would be sustained because in two parts, but that the whole point as to their constitutionality rests on keeping them separate, and that "the minute you put them together you get the same thing you had before."

H. L. Ekern, counsel for the Railroad Employees' National Pension Association, asked Mr. Eastman about his plan for combining with the bill under consideration a statement of facts that would bring it under the commerce clause but Mr. Eastman pointed out that the bill is not in the form of a regulation of commerce but of an appropriation of government money. Mr. Ekern also suggested an amendment by which railroad employees might be paid the usual amount under the social security bill and an additional amount under a separate bill, but

Murray Latimer, who was chairman of the Railroad Retirement Board and has been assisting Mr. Eastman's organization in its pension studies, said he had found no way of co-ordinating the two plans. Mr. Eastman said he thought the attention the Supreme Court would pay to the findings of fact would depend somewhat on how they were arrived at and that the conclusions of a special commission would be entitled to more weight than those which might be brought out at a hearing before a congressional committee.

Mr. Eastman's letter also included some estimates based on studies made by his staff, as to the cost of the proposed pension plan, showing the present value of benefits payable to employees initially covered as $4,271,598,000 under the railroad retirement act, $5,183,000,000 under the new retirement bill, S. 3151, and $4,302,000,000 under the bill as amended since the hearings began. The bill would involve an annual cost of 12.1 per cent of the payroll while the amended draft would reduce this to 10 per cent, but the tax bill proposes to provide for only 6 per cent, 4 per cent to be paid by the companies and 2 per cent by the employees. Mr. Latimer said the cost of the present railroad pension plans to termination is about 4¾ per cent of the payroll. Mr. Eastman's letter included the following:

Mr. Eastman's Letter

Since June, 1933, my staff and advisers have been studying the problem of pensions and retirement insurance on railroads. I did not publish any detailed results of that study at the time of my last report to the President and Congress since it necessarily dealt with matters then in controversy before the Supreme Court of the United States. The decision of that court invalidating the railroad retirement act was so sweeping that a careful review of the results of the study was deemed desirable if they were to be of any material value. The revised study is now practically complete. It will be ready for release early in September.

Social Security Legislation

Within recent months a social security bill providing, among other things, old age benefits to persons employed on railroads has been passed by both houses of Congress and is now in conference.

The studies made by my staff enable a rather accurate estimate to be made of how the social security bill would benefit the approximately 1,100,000 persons now employed in the railroad industry. Beginning in 1942, these employees will receive benefits which, discounted back to the present time at 3 per cent interest compounded annually, aggregate, in round figures, one and one-half billions of dollars. The taxes which these employees would pay and those payable by the carriers under the bill would have a present value of one billion, one hundred millions of dollars. In other words, the present employees of the industry will receive substantial benefits over and above the payments made by them and by their employers. This disparity between benefits to be received by railroad employees and taxes to be paid under the social security bill is due to the fact that the railroad employees of the country are materially older, on the average, than the employees in most other industries.

It is a fair presumption that the social security bill represents the limit to which, in the opinion of Congress, the President and his advisers, this country is prepared to go at the present time in the direction of security for social purposes. Such being the case, further legislation in the same field for a special group of employees cannot be justified by the mere assertion that such legislation would serve social purposes. Advocates of railroad retirement legislation, therefore, must show that such legislation would offer advantages other than the mere disbursement of benefits designed for the advancement of social welfare.

Special Retirement Legislation

One of the major purposes of the study already referred to which has been conducted by my staff was to determine whether, from an economic point of view, special retirement legislation was necessary or desirable for the railroad industry and its employees. It is appropriate at this point to summarize briefly the major conclusions of that study thus far:

(1) The proportion of employees aged 65 and over in the railroad industry is materially greater than in any other major industry.

(2) The proportion of aged persons has been growing for many years, and while the rate of growth was accelerated by the depression, there is no evidence that recovery would result in any diminution of the relative load of superannuated personnel.

(3) The railroads regard age as a distinct handicap to employment:

(a) They refuse to employ persons, generally speaking, without railroad experience who are over age 45;

(b) Even where persons seeking employment have had former service on a railroad, age is a distinct handicap against re-entry into the service;

(c) The rates of separation for the same period of service tend to increase with age;

(d) Detailed analyses of the annual earnings of employees indicate, for the great majority, a steady decline in the value of their services beginning at middle age or before.

(4) A sound retirement system would promote efficiency and economy of railroad operation by removing one of the most serious obstacles in the way of rehabilitating the railroads through co-ordination and consolidation by enabling reductions in the number of employees without working undue hardship upon labor.

(5) Despite the protection of seniority rules, many thousands of persons above the age of 40 are displaced from the railroad industry each year. In recent years the average number of such persons has been about 40,000.

(6) Existing pensions have been inadequate and unsatisfactory, and will prove still more inadequate and unsatisfactory in the future because:

(a) Not all carriers have voluntary systems;

(b) The annuities provided have in a great number of cases been inadequate;

(c) Present voluntary plans all discriminate in favor of high paid as against low paid employees;

(d) The voluntary plans only benefit a comparatively small number of employees, and offer next to nothing in the way of economic security to the great majority.

(e) Despite the existence of voluntary pension plans, the number of employees separated from service without pensions at the age of 70 or over averages from 1,500 to 2,200 annually. In some cases it has been discovered that the number of employees so separated exceeds the number separated with pensions;

(f) On the basis of retirement rates derived from experience of recent years, the volume of superannuation in the industry will increase by 72 per cent in the next 20 years. This increase will occur despite the fact that thousands of employees will continue to be displaced from the industry each year who are 40 years of age and over;

(g) If the present voluntary plans are maintained, even on the assumption that 30 per cent of the persons retired at age 65 and over will not receive pensions and that the average new pension granted will fall for several years on account of the decline in wage incomes since 1930, the expenditures which will be made under these voluntary plans will increase in the next 20 years by about 70 per cent.

The weight of all of this evidence seems to discount rather thoroughly any contention that existing voluntary railroad pension plans will promote efficiency and economy. The evidence lends support to the view that a sound pension and retirement system providing larger benefits than those of the social security bill, and payable more quickly would promote efficiency and economy. Nevertheless, I am not willing to say that the evidence which is now available conclusively demonstrates that such is the case. It is possible that had this evidence been before Congress when the railroad retirement act was under consideration, the Supreme Court might have have held differently than it did in respect to this act. Confronted, however, as Congress is, with a sweeping decision holding the old act unconstitutional, the situation before Congress with respect to future railroad retirement legislation is materially different.

(1) There is no clear demonstration of the fact that the substitution of younger for older men in the railroad industry would definitely promote efficiency and economy;

(2) The evidence fails to show that the payment of annuities

to older persons is a necessary part of the process of substitution of young for old men.

This first deficiency of the evidence is predicated on the decision of the Supreme Court. Without that decision, the data would be sufficient to warrant at least a presumption that the retirement of older men would make for efficiency and economy. The study of my staff made no attempt to prove the second point, because it had been thought inconceivable that any consideration would be given to a mere prescription of retirement without benefit. It is my judgment that an investigation, properly conducted, could prove both points in which the present evidence is not conclusive, and that further investigation, preliminary to the consideration of new retirement legislation, is the wiser course to pursue.

Assuming that some final legislation for retirement insurance covering the railroad industry can be shown to be desirable, the question arises as to whether the particular pieces of legislation now before the Congress would meet the needs. The benefit features of the two bills now under consideration follow, in the main, the benefits of the railroad retirement act, but with a considerable increase in the level of benefits to be paid. As the bills stand, these benefits are to be paid in addition to those under the social security bill, although it is my understanding that the proponents of the measures are willing to accept an amendment which would remove railroad employees from the social security bill. While I am unwilling to say that the proposed bills would not accomplish their purposes, it seems to me that they have, as yet, been inadequately considered:

(1) Although the administrative machinery which would be created by the new bill on its face is the same machinery which was set up to handle the railroad retirement act, the result would be considerably different. There would necessarily be a considerable duplication of effort and conflict of jurisdiction between the Railroad Retirement Board and the Bureau of Internal Revenue. The set-up would be both costly and cumbersome. Third, there is a constant flow of employees in and out of the railroad industry. At one moment they would be subject to the jurisdiction of the social security act, and at the next minute the Social Security Board would drop them and they would come under the railroad retirement act.

(2) The financial arrangements which have been provided for meeting the cost of the proposed retirement system are unsatisfactory. There is no provision for the creation of a fund, and, indeed, under the theory on which the bill apparently is drawn, no fund could be created. The cost of the act, therefore, will be increased by the amount of interest which could be earned on a fund.

(3) An amendment simply taking the railroad employees out from under the social security act would lose about four hundred millions of dollars (present value) for the industry in respect of its present employees.

(4) While I am not prepared to say that the costs of the proposed bill are excessive, they are nevertheless large and can only be justified on the ground that the railroad industry itself would gain materially from the enactment of this legislation. The question here is not whether general social benefits would accrue, but whether the railroad industry itself would benefit, since the costs are not assessed on general taxation. In reality, despite the attempted language of the act, the burden of cost would fall squarely on the railroad industry. As a matter of interest, I give figures, based on the studies made by my staff; as to costs of the new proposal compared with the costs under the railroad retirement act.

Present Value of Benefits Payable to Employees Initially Covered by a Railroad Retirement System

	New Retirement Bill	Railroad Retirement Act
	(000 omitted)	
Benefits payable to employees retiring at 65 or over and before 65 with the cutback	$3,733,621	$3,056,068
Benefits payable to employees retiring for disability, before 65	649,406	440,105
Benefits payable at 65 to employees withdrawing from service before qualifying for annuity	417,287	458,600
Death benefits	182,718	116,825
Total benefits payable to employees in active service on the enactment date	$4,983,032	$4,071,598
Benefits payable to employees not in active service on the enactment date	200,000	200,000
Grand Total	$5,183,000	$4,271,598

The above figures show that the normal annual cost of benefits under the proposed plan is 5.70 per cent of the payroll. But this cost is normal only in the sense that if that percentage had been applied to the payroll in the past it would have met the cost. The proposed bill, of course, does not apply to the past, but it does give benefits to present employees exactly as if the proposed system had been in effect during their whole period of service. As a result there is a cost incurred in respect of past service over and above the normal cost. This extra cost, which may be termed an initial deficit, is over $3,700,000,000. That is, if the system started off with a fund of $3,700,000,000, earning interest at 3 per cent per annum, 5.70 per cent of the future payroll would support the benefits. If future payrolls are assessed 6 per cent, the initial deficit would be about $3,640,000,000. This is over nine hundred million dollars greater than the corresponding figure for the railroad retirement act.

The mere payment of interest on this deficit, without reducing it, with the addition of the normal cost would involve an annual cost of 12.1 per cent of the payroll, or more than double the taxes provided under the taxing bill. Such taxes would have to start immediately and their proceeds, over and above benefit payments, appropriated and invested so as to earn 3 per cent interest annually. If there is no accumulation of funds and the employees and carriers are taxed currently to provide the benefits, such taxes would, within 25 years, mount up to almost 20 per cent of the payroll. If taxes on carriers and on employees are not increased, the minimum annual burden on the general federal funds would amount to over $100,000,000 annually, and unless an appropriation of this amount were currently set aside and invested, the burden on the general fund would rise within 25 years to $200,000,000 annually.

(5) In his general message covering social insurance sent to the Congress in January of this year, the President laid down certain principles as a guide for legislation in the field here under consideration. One of these principles was: "The system adopted, except for the money necessary to initiate it, should be self-sustaining in the sense that funds for the payment of insurance benefits should not come from the proceeds of general taxation."

The present bill, which is intended as a substitute for the social security bill so far as railroad employees are concerned, is a direct contradiction of the specific principle laid down by the President.

In summary, I may say that in my opinion the need for this particular legislation has not been shown. For the reasons which I have indicated, it seems to me that inadequate consideration has been given to administrative and cost factors in the newly drafted bills, and that the working out of these factors and the problem of integrating and articulating the new system with the social security bill needs much further careful analysis.

Since writing the above I have learned that the proponents of S. 3151 have offered amendments to limit creditable service to 30 years and to change the service qualification for benefits to an employee retired by a carrier for physical or mental disability for 25 to 30 years. These changes would make the costs of the bill, according to the estimates of my staff, the same as the railroad retirement act, except for the death benefit. These changes in the proposals for legislation do not seem to me to lead to any modification of the conclusions expressed concerning S. 3151. Rather, they confirm my feeling that further study and analysis of the whole situation are essential for sound action.

Dr. Parmelee Finds Cost Burden Intolerable

Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, who had testified before the House committee last week on the similar Crosser bill, also testified at the Senate hearing and included some additional estimates of the cost under the amended bill and under some amendments proposed by Mr. Ekern. Dr. Parmelee estimated that the Crosser bill would cost $80,000,000 in the first year and that there would be a gradual increase annually in the cost. After twenty-five or thirty years he estimated that the cost of annuities for a single year would amount to approximately $350,000,000.

"In considering the cost of annuities under the bill,

it should be borne in mind that the carriers are now paying approximately $36,000,000 per year in the form of voluntary pensions to retired employees. These pensions, if continued until the pensioners now on the rolls have been removed by death, would cost the carriers in the neighborhood of $300,000,000, the bulk of which would be paid within the next ten years. This cost to the carriers would if continued be in addition to their burden of special taxes under the tax bill."

Dr. Parmelee said that the cumulative tax receipts derived from the companion bill designed to finance the plan would fall behind the cumulative annuity payments by not later than the seventh year and the deficiency would continue to grow for many years thereafter.

"This deficiency," he added, "can be met in only one of two ways. Either it will be made up out of the Treasury, by appropriation of funds derived from general taxation, or the rate of special levy on the carriers and their employees will be increased by Congress from time to time, in order that the receipts from that tax may be sufficient to meet the cost of the retirement system. If the latter policy be followed by Congress, to make the system self-supporting the total rate of levy on the railway industry must eventually be raised to several times the rate fixed in the Crosser bill, to at least 18 per cent compared with the present proposed rate of 6 per cent. If the two-to-one ratio be maintained, as between carrier employer and employee, the tax rate will then become not less than 12 per cent for the carriers, and not less than 6 per cent for their employees.

"The large and increasing burden which this bill and its companion tax bill would throw on the carriers, if enacted, would represent an intolerable addition to their already serious financial difficulties. I need not dwell on the present economic status of the carriers, as it is already too well known to the committee, and to members of Congress generally."

The Krauthoff amendment would restore the 30-year maximum period of service for computing pensions. Dr. Parmelee said that the estimate submitted by Mr. Latimer showed a total cost under the plan for 31 years of $5,994,000,000 or an average of $193,350,000 a year and that by 1960 it would amount to from 15.3 to 16.8 per cent of the payroll, but that Mr. Latimer had based his estimate on only 1,100,000 employees whereas if employees of short lines, switching and terminal companies, electric railroads, and others included in the bill are counted the number is now 1,241,000. He calculated that if the proposed system were operated to 1965 and then discontinued but carried on to the deaths of the employees then covered, the total cost would be $8,840,000,000, of which $6,000,000,000 would be payable in the first 31 years of the plan, most of it on account of service rendered prior to the enactment of the law.

Although the labor executives had called on President Roosevelt in an effort to enlist his support for their pension bills, the President said at his press conference on Wednesday that he had not yet seen a railroad pension bill that seemed to have a reasonable prospect of being approved by the court. He added that it would be a fine thing if one could be devised that would be approved.

A TOTAL OF 2,320 NEW INDUSTRIES located on the lines of the Pennsylvania during the past five years, according to a compilation made by that road's industrial department. Of the total 1,040 were located in the Eastern region, 668 in the Central region and 612 in the Western region. The low mark of the depression was reached in 1932 when only 393 additional plants were established.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended July 13 totaled 566,488 cars, an increase of 94,067 cars as compared with the week before, which included the Fourth of July holiday, but a decrease as compared with the week before the holiday. As compared with the corresponding week of last year this was a decrease of 37,704 cars, and as compared with 1933 it was a decrease of 87,173 cars. All commodity classifications except coke showed an increase as compared with the week before, but all except forest products, ore, and coke showed decreases as compared with last year. The summary as compiled by the Car Service Division of the Association of American Railroads, follows:

Freight Car Loading

For Week Ended Saturday, July 13

Districts	1935	1934	1933
Eastern	123,321	130,441	147,002
Allegheny	103,085	116,745	133,125
Pocahontas	36,031	39,838	47,296
Southern	79,574	79,359	89,354
Northwestern	86,519	90,797	91,752
Central Western	89,875	97,288	93,529
Southwestern	48,083	49,542	51,603
Total Western Districts	224,477	237,809	236,884
Total All Roads	566,488	604,192	653,661
Commodities			
Grain and Grain Products	29,278	43,089	51,531
Live Stock	11,047	20,724	15,584
Coal	75,483	95,653	113,332
Coke	4,666	4,459	6,366
Forest Products	26,624	21,890	28,591
Ore	33,942	32,711	25,524
Merchandise L.C.L.	152,061	157,853	171,239
Miscellaneous	233,387	227,813	241,494
July 13	566,488	604,192	653,661
July 6	472,421	520,741	543,510
June 29	618,036	646,003	641,730
June 22	567,847	623,322	609,627
June 15	653,092	618,881	592,759
Cumulative Total, 28 Weeks	16,214,966	16,561,556	14,541,471

The freight car surplus for the last half of June averaged 271,627 cars, a decrease of 1,931 cars as compared with the first part of the month. The total included 175,173 box cars, 50,288 coal cars, 29,140 stock cars, and 6,193 refrigerator cars.

Car Loading in Canada

Car loading in Canada for the week ended July 13 totaled 45,668 cars as against 39,835 cars for the previous week and 45,389 for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
July 13, 1935	45,668	17,159
July 6, 1935	39,835	18,614
June 29, 1935	45,436	20,680
July 14, 1934	45,389	20,033
Cumulative Totals for Canada:		
July 13, 1935	1,199,488	616,180
July 14, 1934	1,180,150	640,910
July 15, 1933	980,992	498,488

THE AUSTRALIAN FEDERAL GOVERNMENT has decided not to proceed with the proposed construction of a standard-gage railway line from Port Augusta to Adelaide in order to unify the railway gages along the Commonwealth's main interstate route. The adverse decision, according to recent reports received by the U. S. Department of Commerce, was due to the opposition of state governments and the continuing necessity for economy in federal expenditures.

W. J. Harahan Elected President of C. & O. and Pere Marquette

Formerly senior vice-president of both systems, he succeeds the late John J. Bernet in key position in Van Sweringen group

WILLIAM J. HARAHAN, senior vice-president of the Chesapeake & Ohio and the Pere Marquette, was elected to the presidency of these companies at meetings of the boards of directors on July 23. He will have offices at both Cleveland, Ohio, and Richmond, Va. In both capacities Mr. Harahan succeeds John J. Bernet, whose death on July 5 was reported in the *Railway Age* for July 13. The presidency of a third Van Sweringen property—the New York, Chicago & St. Louis—was also left vacant by the passing of Mr. Bernet, and it is understood that the matter of a successor to this position is to be considered at a meeting of the board of directors sometime this week. In becoming head of the C. & O., Mr. Harahan returns to a post that he was holding in 1929, when the Van Sweringens consolidated the executive direction of the C. & O. and the Pere Marquette under Mr. Burnet.

William J. Harahan

In length of service, in breadth of experience and in his accomplishments as a railway operator, Mr. Harahan is eminently qualified to assume the greater responsibilities inherent in his new position. Now 67 years old, he has been in active railroad service for 54 years and, not including his connections with the C. & O., has held important executive posts on three large systems, including those of vice-president in charge of traffic and engineering of the Illinois Central, vice-president in charge of engineering of the Erie and president of the Seaboard Air Line. The son of the late James T. Harahan, he left the Illinois Central in 1907 to go with the Erie, "principally," he said, "because I wanted to get away from the road of which my father was the president." "On the other hand," he continued in a statement made in 1922, "I realize fully how much I owe to my father for the training and advice he gave me in the early years of my experience."

During his previous term (1920-29) as president of the C. & O., Mr. Harahan saw that road's gross revenues rise nearly 50 per cent over a six-year period, or from a 1920 figure of $90,524,185 to a 1926 peak of $133,874,031. The gross revenue in 1927 amounted to $133,042,174, but there was a recession in 1928 when the figure fell to $124,825,172. Likewise, net income rose from a 1920 figure of $3,812,906 to $28,607,315 in 1927, and $28,916,925 in 1928, the latter, an increase of $309,610 over the previous year, being realized despite the drop of $8,217,000 in gross revenue.

The increase in gross revenue was brought about by a rise in the number of revenue tons carried from 40,858,116 in 1920 to 71,023,263 in 1927, and 65,935,659 in 1928. Net ton-miles rose from 11,720,030,889 in 1920 to 18,186,579,973 in 1928, while freight train mileage increased only from 10,359,986 to 13,207,472, owing to the fact that the net tons carried per train had increased from 1,197 to 1,433. In 1920 the revenue tons carried per mile of road averaged 16,211, whereas in 1928 the traffic density had increased to the point where 24,210 revenue tons were carried per mile of road.

The favorable aspects of the earnings figures may be attributed largely to improvements of the property carried out under Mr. Harahan's direction and to his policy of maintaining strict control over operating expenses. In explaining this policy in a statement made in 1922, he said: "Today it is essential for the railway man to get the commercial viewpoint—to think of railway transportation as a business undertaking. Every railroad man should understand that there must be a proper relation between income and outgo and that this cannot be maintained unless it is watched closely from day to day. On the Chesapeake & Ohio we have an organization that does nothing but work up operating statistics, planning for the future rather than making post-mortems of the past. Based on information this department secures estimates of anticipated operating revenues by months for the year and with this as a guide, we also make a distribution of required operating expenditures. Then from daily statements that are prepared by this staff, I am able to see every day how the relation of revenue and expenses is being maintained. This does not mean that we aim to keep a fixed relation from month to month. Instead we distribute our expenses for maintenance of equipment and maintenance of way so as to carry on the work intensively in the most favorable months, but

by keeping a close check we can tell in advance what changes to make in our plans so that we will come out all right at the end of the year."

Mr. Harahan's Career

William J. Harahan was born December 22, 1867, at Nashville, Tenn., and first entered railway service in 1881 as a messenger and clerk in the superintendent's office of the Louisville & Nashville at New Orleans, La. In 1884 he entered the Louisville & Nashville shops as apprentice and in 1886 he was transferred to the engineering department. For two years, beginning in 1889, he was engineer maintenance of way on the Cincinnati division of the Chesapeake & Ohio. In 1890 he was placed in charge of structures on the Baltimore & Ohio Southwestern and two years later became roadmaster and trainmaster of the Pontiac division of the Illinois Central. In April, 1895, he was appointed assistant superintendent of the Freeport division and in October of the same year was advanced to superintendent. In 1896 he became superintendent of the Louisville division and in May, 1901, was appointed chief engineer of the Illinois Central.

A little over a year later, Mr. Harahan was appointed assistant general manager and in 1905 fourth vice-president and general manager. During the first half of 1907 he was vice-president in charge of traffic and engineering, and in July of that year he left the Illinois Central to become assistant to the president of the Erie. In January, 1911, he was elected vice-president in charge of engineering of the Erie, and on September 26, 1912, he was elected president of the Seaboard Air Line. From July, 1918, to March 1, 1920, he was federal manager of that property and from April to December, 1920, when he became president of the C. & O., he was a member of the Railway Board of Adjustment No. 1, Division of Labor, United States Railroad Administration. Since 1929 Mr. Harahan has served as senior vice-president of the C. & O. and the Pere Marquette.

* * *

On the Canadian Pacific near Ottawa

Labor Lobby Says Railroads Are Also Lobbying

WASHINGTON, D. C.

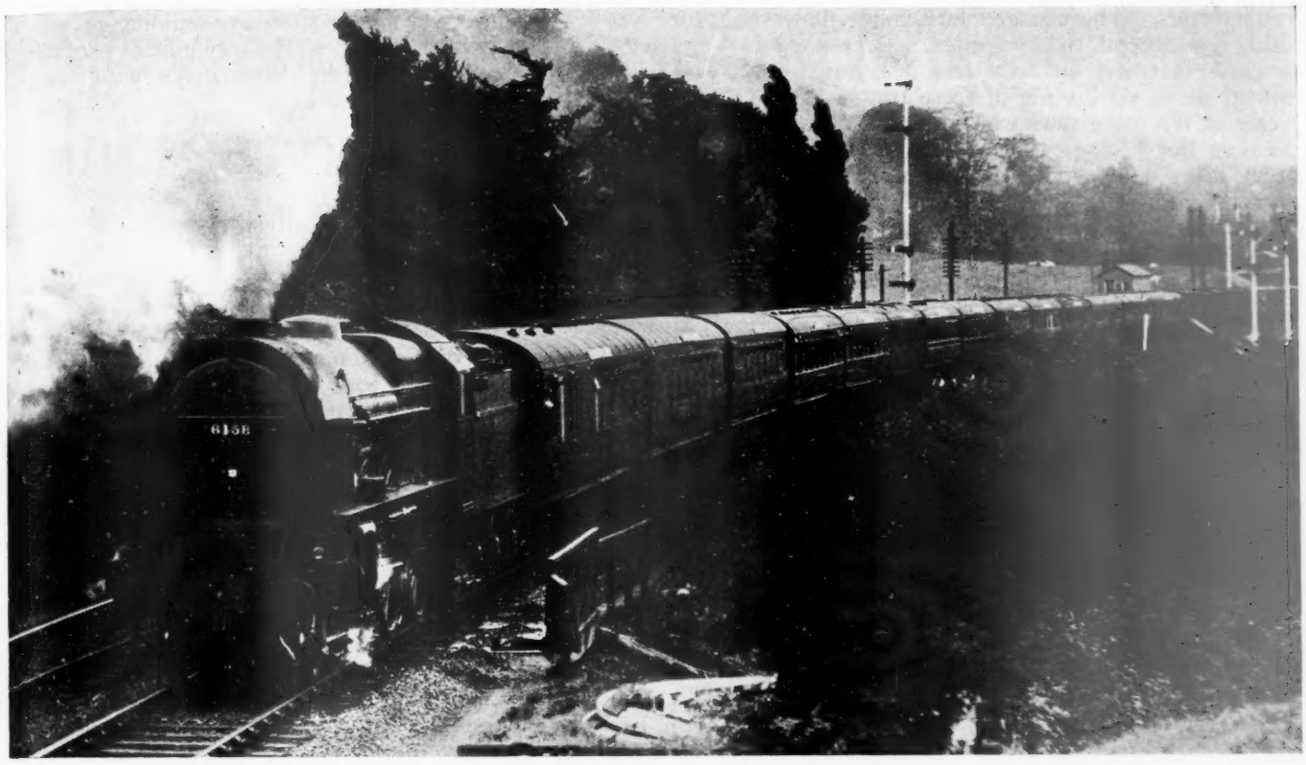
TAKING advantage of the current interest in Washington in "lobbying" activities, while a Senate committee is investigating the "lobbying" practices of the utility companies in connection with the Wheeler-Rayburn holding company bill and a House committee has been similarly inquiring into the legislative efforts of the Roosevelt administration on the same bill, "Labor", the weekly newspaper published by the "Associated Recognized Standard Railroad Labor Organizations", came out this week with a two-column story on "the activities of the national lobby which the railroads have set up in Washington under the name of the Association of American Railroads." An advance copy was furnished to a New York newspaper which published it with a statement that the "charges" had been or would be laid before the Senate committee by Edward Keating, manager and editor of the paper. For some weeks "Labor" has been printing stories of the legislative activities of its own organizations, usually without using the adjective which it applies so freely to the actions of others, although in its issue of June 11 it said that "A new kind of 'lobby' climbed Capitol Hill this week and was welcomed by members of Congress," consisting of "half a hundred railroad workers from back home," who were described as general chairmen and state legislative representatives of the labor organizations who had come to Washington to interview every member of Congress on legislation being pressed by the organizations, supplementing the activities of the national legislative representatives of several of the organizations who are regularly stationed in Washington as well as those of the legislative committee of the Railway Labor Executives' Association.

J. J. Pelley, president of the railroad association, promptly issued a statement saying he believed the efforts of the railroads to be "altogether legitimate", and pointing out that many of them had been made necessary by the activities of the labor organizations in insisting on the passage of bills which, if enacted, would "ruin" the railroads by adding more than $750,000,000 to the annual cost of operating them.

Some of the principal assertions made by "Labor" were that the railroad association was "lining up" leading citizens in every state and county, "all pledged to 'put the heat' to Congress when that treatment seemed desirable from the point of view of the lobby," and that "they have undertaken to divide the Senators and Congressmen from New York state among the various railroads doing business in that state, and they have designated a railroad official whose special business it is to see that the member of Congress for whom he is responsible is kept under the proper 'influence' at all times." It was also stated that many of the railroad officials had been relieved from their regular duties for this purpose, but Mr. Pelley, in his statement, declared this to be without foundation.

"The railroad industry is one affected with a public interest and engaged in interstate commerce, and is therefore in a peculiar sense subject to Congressional action," Mr. Pelley said. "At every session of Congress, many measures of vital importance to the railroads are introduced and considered. At the present time, organized railroad labor, through its numerous and efficient legis-

(*Continued on page 116*)



The Royal Scot of the L. M. S. on Its Way to London

L. M. S. Stresses On-Time Performance

Speeds up trains to meet highway competition and concentrates on punctuality as a traffic-producing factor

THE London, Midland & Scottish, of Great Britain, operates between 11,000 and 12,000 passenger trains per day over its 7,000 miles of railway. Highway competition has, in recent years, made necessary marked changes in the operation of passenger trains in order to retain traffic and attract additional revenue in a country of short distance travel.

Speed was a considerable factor in this changed operation. There is hardly a train on which the schedule has not been shortened within the last three or four years, and, as a result, 30 trains on the system now make a total of 2,317 miles daily at overall speeds of greater than 58 miles an hour. These range from rather long runs, such as from Crewe to Willesden, 152.5 miles, in 142 min., or 64.4 miles per hour; and from Wilmslow to Euston, 177 miles in 172 min., or 61.7 miles per hour; to short dashes such as from Mangotsfield to Gloucester, 32 miles in 32 min.

Four weeks ending:	Percentage of express trains on time 1935	1934	Percentage of local trains on time 1935	1934
January 26	80	71	91	87
February 23	85	72	93	87
March 23	90	80	95	92
April 20	90	78	95	91

Coincident with these accelerated schedules, an on-time campaign was begun, the results of which are indicated in the accompanying table.

As a result of a continuing on-time campaign, there is every indication that these gains will be held and extended.

The L. M. S. owns about 8,000 steam passenger locomotives, together with a number of electric locomotives which operate on the three electrified sections in the vicinity of London, Manchester and Liverpool (41 miles, 13 miles and 37 miles, respectively). The passenger service included in the above table is placed in the following categories:

Fast main line trains between London, Glasgow, Edinburgh, Manchester, Liverpool, Leeds, Sheffield, etc.

Cross-country fast trains between Manchester and Glasgow and Edinburgh, Manchester and Leeds, Derby, Birmingham and Bristol, Birmingham and Manchester and Liverpool, etc.

Long-distance suburban services, such as Manchester and Blackpool, 48 miles; Liverpool and Llandudno, 74 miles.

Steam and electric suburban services round the cities of London, Manchester, Liverpool, Birmingham, etc.

Formerly, cheap fares were available only on particular trains, which were generally run at such times as would not interfere with the main line express pas-

senger trains. The changed fare policy, however, providing for general reduced rates, has resulted in large increases in travel on main line fast trains, with consequent increased loading of these trains.

One of the more successful means of attracting traffic has been the "evening cruise" trains operated from the larger cities and towns to coastal resorts and other points of interest. These trains, in many cases, have to be run during the times of the day during which the freight traffic is at its heaviest. Increased standards of comfort in passenger equipment have had their effect on train loading. Traffic by reserved compartments has increased, involving more station operations in transferring the cars from one train to another.

Apart from the mail, one of the features of passenger train operation in Great Britain is the heavy "parcels" traffic. This consists of traffic conveyed by passenger train at higher rates than by freight service and has reached a considerable volume in recent years. Some 44,500,000 parcels are conveyed annually by L. M. S. passenger trains, in addition to 69,000 tons of fish, fruit, poultry and butter. The extent of this traffic has an important bearing on passenger train operation for, although a proportion is conveyed on special parcel trains, a large tonnage is carried on the ordinary passenger services.

Beginning in December, 1934, a special monthly publication was issued, entitled "On Time," and devoted entirely to the campaign. This journal conveys, in highly readable, profusely illustrated form, the progress of the campaign. It gives the comparative standings of the various divisions in on-time performance and carries accounts of particularly good records on the part of employees. A pertinent message, from one of the operating executives, giving specific hints for improvements in service, is a feature of each issue, and photos and personal sketches of the crews of the various famous trains appear periodically.

Each factor of on-time performance is being given careful attention by the entire personnel. In addition, special studies, leading to recommendations for improvements have been made and are being continued, of such factors as delays awaiting connections, station duties such as baggage handling, adequacy and efficiency of the station staffs, and the consist of trains with a view to reducing the number of cars per train where possible. A special study is in progress as to parcels traffic operations, comprising an investigation of increased use of containers, increased classification on trains and additional parcels trains to relieve ordinary trains.

Apart from the day-by-day recording and supervision of passenger train operations, special studies are also made to analyze the causes of delay, with a view to taking such remedial steps as altering the schedules or changing the consist of the trains.

Recently, a certain day was set apart by the chief operating manager as "Punctuality Day," when a special effort was made to attain a 100 per cent on-time record. This was successful, not only from the point of view of results, but because various arrangements, mostly of a local and detailed character, were made on this day that have proved effective tor every-day operation and will lead to generally improved operations.

The maintenance of the 8,000 passenger locomotives has been an important factor in improving the on-time record of the London, Midland & Scottish. Any time lost because of locomotive failures is rigorously investigated, and, since the inception of the present campaign, improved methods of analysis of engine failures has been set up, which tend to prevent recurrences.

The general condition of the power is also being improved steadily, under the locomotive-building policy of the L. M. S., which provides for large annual programs of replacement of the older locomotives with faster, modern types.

Labor Lobby Says Railroads Are Also Lobbying

(*Continued from page 114*)

lative agents at Washington and in the states, is insisting upon the passage of at least eight bills, the cost of all of which to the railroads, if enacted, would be more than $750,000,000 even under the present depressed volume of traffic. In the above estimated aggregate, the cost of the pension bill to the railroads is figured at $60,000,000, which is the amount for the first year. This levy on the railroads will mount steadily to a probable annual total of $200,000,000.

"If these laws are passed, the railroads are ruined. Operating in 1934 at a net deficit of $32,000,000, obviously they can not absorb an increase in expenses of three-quarters of a billion dollars. If these bills, or any considerable number of them, become laws, organized labor will accomplish its declared purpose, which is to bring about government ownership and operation.

"Confronted at every session of Congress with an active, organized, determined effort along the lines indicated, advocated by men assigned to Washington for that purpose, the railroads must discharge their duty as trustees of the properties committed to their care, responsible for the service they are expected to perform and see to it that their views on such matters are brought to the attention of public officials and the public generally as effectively as possible. To this end, committees have been formed in the several states, composed of railroad officers, whose duty it is to present to the public, including members of Congress and state legislatures, the facts about the railroad situation.

"We believe this to be altogether legitimate. We are sure that no methods have been adopted which transcend the limits of propriety. The charge that responsible railroad officers have been relieved from other duties to devote their time to legislative work is without foundation in fact. The officers of the association in Washington give all their time to matters of general interest to the railroads. Among other activities, they appear before committees of Congress with respect to bills of interest to the railroads. In the several states similar work is done at state legislative sessions. Beyond this, the efforts of the organization are confined to the presentation of facts and arguments in an effort to protect railroad revenues from attacks by those who assert that they can marshall more than a million votes for their campaign.

"It goes without saying that the association and all of the railroads constituting its membership stand ready at any time to give to any committee of Congress any information in which the committee may be interested. It has made no effort to conceal the work it is attempting to do. The article in the Times, when carefully analyzed, contains no revelations with which the interested public is not familiar."

"Labor" also stated, in another story which did not use the word "lobbying", that the Railway Labor Executives' Association convened in Washington on Thursday and that "it was decided to place all the influence of railroad labor back of the pending railroad retirement bill."

Alloy and Rust-Resisting Metals Find Increasing Sphere on the Railways

Light weight, high strength and anti-corrosive properties make them desirable and economical in many parts of modern rolling stock and fixed structures*

By A. R. Wilson

Engineer Bridges & Buildings, Pennsylvania

THE subject of alloy and rust resisting metals for railroad purposes is both timely and important, as corrosion exerts a destructive and limiting influence on the life of metals as used by the railroads and is active wherever iron or steel is exposed to the atmosphere. A crude definition of an alloy would be the metal resulting from the addition of elements of known properties (either strength or corrosion-resisting) to the common garden variety of metals.

At the present time, both in this country and abroad, we find aluminum, wrought iron and alloy steels containing manganese, silicon, nickel, chromium and copper entering into the construction of bridges and railway equipment. Whether it is economical to use any particular alloy of steel in bridge construction, instead of standard carbon steel, depends upon the ratio of the cost per pound erected of carbon steel to that of the alloy steel under consideration, keeping in mind the reduction in the dead load or weight of the structure due to the lighter weight of steel involved where alloys are used.

Alloy steels are more expensive than ordinary steels, but are generally stronger; hence, in order to effect any particular purpose it usually does not require as much weight of metal as if ordinary steel were employed. The proper adjustment of the lesser weight to the greater pound price will determine the economy or lack of economy in employing the alloy.

In railway equipment, several factors enter into the problem of determining the most economical material. First cost, useful life, and the ratio of gross weight (car and lading) to the weight of the car must be considered, it being quite evident that with a given size of journal, the lighter the car body, the greater will be the capacity for the pay load. In the light-weight streamline passenger trains this is further reflected in the cost of the power unit and in its operation.

Wrought Iron Is Highly Rust Resisting

The brittleness of cast iron renders it an unsatisfactory material for railway bridges. Its manufacture began in the Fifteenth century, but it was not until 1776 that the first span of this material was built, at Coalbrook, England. Wrought iron was rolled into structural shapes as early as 1783 by Cord of England, and the first bridge in which this material was used was built in England in 1823; the first bridge in the United States being built by the Philadelphia & Reading in 1845.

Although steel generally displaced wrought iron as a structural material in the Nineties, wrought iron is recognized as having superior corrosion resisting qualities and is now being specified in parts of some structures, such as deck plates on ballasted floor bridges, cover plates on girders and floor members, and as blast plates on the underside of highway bridges. In these installations, this material is used as a corrosion-resisting material rather than for strength, but at a higher price than for plain carbon steel. In providing additional fire protection for some of its timber piers in the New York harbor, the Pennsylvania installed continuous vertical fire walls or baffle plates of wrought iron. These plates extend from the underside of the deck to the water surface.

The question of producing a wrought iron alloyed with other metals (in small percentages) for the purpose of improving its physical properties, has been a matter of research for several years by the A. M. Byers Company, Pittsburgh. They have found that nickel alloyed with wrought iron through a range of 0.5 to 5 per cent results in increasing both the yield point and the ultimate tensile strength, but that for most practical purposes 1.5 to 3 per cent is most desirable. With the 3 per cent nickel content, the ultimate strength is increased about 25 per cent and the increase in yield point is about 50 per cent. Nickel naturally increases the cost of wrought iron. In its addition the principal object is to secure greater strength, no claim being made for any increase in corrosion resisting properties.

Copper-Bearing Steel Resists Corrosion

The list of alloy steels as now trade named is approaching in length the list of alphabetical organizations and bureaus in our national government. Those appearing in the list of ferrous metals as used in railway equipment and structures are Copper-bearing, Beth-Cu-Loy, Silicon, Nickel, Manganese, Mayari, Sil-Ten, Cor-Ten, Man-Ten, Cromansil, Stainless, Heat-Resisting, Monel, Inconel, etc., and abroad we have the British Chromador, The French Chrome Copper, the German S T 52 and German Krupp. Added to this list of steels we also have aluminum and its alloys. The first railway bridge specifications that include requirements for the manufacture, workmanship and unit stresses of silicon- and nickel-steel, are those adopted recently by the American Railway Engineering Association.

The development of the steel industry was rather slow, and wrought iron remained the almost universal bridge metal until 1880. But between then and 1890, open-hearth steel came into use, generally replacing wrought iron for structural purposes in bridges. Early specifications for structural steel required the removal of copper, and the product was priced accordingly. For

* Presented before the New England Railroad Club, at Boston, Mass.

some time, however, steel containing copper (or copper-bearing steel as it is called) has been recognized as a rust-resisting metal, and we now pay to have copper added.

While copper-bearing structural steel has been optional for a number of years, no comparative tests have been made nor is information available as to the increase in the life of a structure in which it has been used. However, records of its use in steel cars, tie plates, track spikes, metal culvert pipes, metal flashings, ventilators, wire fencings and steel sash indicate a life one and one-half times as long as plain steel.

In 1914, 200 steel freight cars were manufactured and placed in service, one-half of each car being manufactured from copper-bearing steel, and the other half from plain steel. After 13 years of service, the average loss in thickness of the copper-bearing steel sheets was 32 per cent, while that of the plain steel sheets was 57 per cent. More definite results on comparative service were obtained by cutting one of the cars to pieces after 13 years' service and cleaning and washing the sheets. This test showed the average loss in weight of sheets taken from six different locations on the car. The plain steel had lost 44.7 per cent and the copper-bearing steel 27.3 per cent. It was also observed that the paint adhered better to the copper-bearing sheets.

A committee of the American Railway Engineering Association, reporting on copper-bearing steel, concluded that: "From results of exposure and service tests on the use of copper-bearing steel, we recognize its value as a rust-resisting metal and recommend its use in railway structures exposed to corrosive influences."

The Bethlehem Steel Company has recently developed and is marketing under the trade name of "Beth-Cu-Loy," copper-bearing sheets having a copper content of from 0.2 to 0.3 per cent, a range which is said to give to iron and steel the highest resistance to atmospheric corrosion and brine drippings. A recent application of this material in railway service is the installation on a bridge now being built over the Mississippi river at New Orleans. In this construction, the sheets are laid over the ties on both approaches to protect the steel supporting structure from brine drippings, as well as to reduce the fire hazard occasioned by live coals dropping from locomotives.

Many Special Alloy Steels Available

The development of high tensile or alloy steels for structural purposes seems to have followed different lines in Europe than in the United States. In this country nickel and silicon steels have been used extensively for long-span bridges, but they have not been used where there is no special incentive for the designer to reduce the dead load. In large structures it is often necessary to use a high tensile material, even if the increased cost per ton, as compared with mild steel, is high. In small structures its use can be economical only if the percentage increase in strength is greater than the increase in cost. In Europe, the high-tensile steels have been used economically in many small structures.

The first actual use of nickel in bridge work in this country was in the eye-bars of the Blackwell's Island bridge at New York, which was built in 1905, although nickel steel was talked of for bridges in both this country and in Europe prior to 1902. Nickel steel eye-bars were also used in the Municipal bridge over the Mississippi river at St. Louis, built in 1911; in the Quebec bridge, built in 1915; and in the Chicago, Burlington & Quincy bridge over the Ohio river at Metropolis, Ill.; built in 1917.

In 1915, the Pennsylvania Steel Company, in seeking an economical nickel steel, obtained control of an iron deposit in Mayari, Cuba, which contained a small percentage of nickel. As a result, the nickel steel developed was trade named "Mayari." With the proper selection of the ore, this steel can be produced with a uniform nickel content.

Silicon steel has been used to such a large extent that it is almost as common as plain carbon steel, there being very few large structures, either railroad or highway, in which it has not been used. It can be obtained from practically all structural and plate mills, even in moderate tonnages, if it is not ordered in too wide a variety of sections.

The high-strength steels permit of an increase in unit stresses in the design, which results in thinner sections as used in railway equipment. Unless the materials in these thin sections are resistant to corrosion, serious consequences will result and no economy will be reflected in their use. The increase in strength of these steels has been accomplished by the addition of silicon, manganese or nickel, or all three, to low carbon steel. For corrosion resistance, either chromium or copper or both have been added. Steels containing these elements have an elastic limit averaging 50,000 lb. per sq. in., and an ultimate strength averaging 75,000 lb. per sq. in., with corrosion resisting properties of four times that of plain carbon steel.

The United States Steel Corporation has introduced on a commercial basis three low-alloy high-tensile steels, —Cor-Ten, Man-Ten, and Sil-Ten, their names indicating the elements used. Cor-Ten not only has relatively high strength, but greater corrosive resistance than other available steels, with the exception of the more costly high chromium alloys. These steels have been used in the construction of experimental hopper and box cars. Cor-Ten was used in the superstructure of one, and in the under-frame of the other, of two streamline trains for the Baltimore & Ohio. In the 50 passenger coaches for the New Haven and the 31 for the Boston & Maine, Cor-Ten and Man-Ten have been used generally, this being the first application of high-tensile steels in modern coach construction.

A steel called Cromansil has been used in the beds and crankcases of the Diesel power equipment in the light streamline trains, and has been produced by the addition of chromium and manganese in small amounts to low carbon steel, giving the material high strength and ductility characteristics.

Stainless steel, or "18 and 8" as it is sometimes called, with its properties of high strength and corrosion resistance, provides a material suitable for both the exterior covering and inner structures of cars. Used as a covering it presents a thin but very strong surface that will not rust or corrode, and needs no coating or plating to preserve its mirror-like appearance. This material can be given—by cold rolling and without heat treatment—a tensile strength of 150,000 lb. per sq. in.

The Budd Manufacturing Company used this material in the construction of light high-speed trains, such as the Burlington "Zephyr," and "The Flying Yankee." In most such construction this material does not exceed 0.05 in. in thickness, being formed from strips into the required sections.

Monel-metal is a registered trade-mark applied to an alloy containing approximately two-thirds nickel and one-third copper, which has high corrosion-resisting properties.

Inconel is an alloy produced by adding to nickel sufficient chromium (about 14 per cent) to make its surface stainless without, at the same time, having any harmful effect on the malleability or workability of the

material. The major feature of its corrosion resisting property is its resistance to tarnishing and staining. The use of these nickel alloys has generally been confined to fittings, trimmings and kitchen equipment.

Aluminum Alloys

I have confined my remarks thus far to steel and steel alloys, and it would be amiss not to discuss aluminum alloys as a structural material. The outstanding and major use of this material, although not in a railway structure, was in the reconstruction of the floor of the Smithfield Street bridge over the Monongahela river at Pittsburgh, Pa. This bridge was built in 1882, and consisted of two spans, each 360 ft. long, each span having two side and one center truss, providing two roadways, each about 24 ft. clear. As is common with all old structures, both railroad and highway, the live load capacity is restricted. To have rebuilt the Smithfield Street bridge to accommodate present-day highway loads would have entailed an expenditure of $1,250,000, while the reconstruction, employing aluminum alloy shapes, cost about $275,000.

The difference between the yield point and ultimate strength in aluminum alloys is much less than in any of the steel alloys. It weighs 35 per cent as much as steel. Its modulus of elasticity is about one-third that of steel, and consequently it deflects three times as much with the same unit stress.

Those of you who have seen the Cincinnati Union Terminal must have been impressed with the colorful gayety of the interior. This is accentuated through the use of aluminum in the fabrication of practically all of the metal work. The vestibules and concession fronts, the ticket windows and grilles, the interior trim and joint filler strips between the marble blocks, the radiator and ventilator grilles, the lighting fixtures and clocks, the railings and gates, many of the window frames and sills, and all of the metal doors, transom bars and door frames on the main floor, are constructed of aluminum.

Aluminum alloys are particularly resistant to atmospheric corrosion and the corrosive influences to which rolling stock is commonly subjected. The use of aluminum in the apparatus decks and cabs of 100 electric locomotives built by the Pennsylvania represents the first large tonnage of this metal used in railroad equipment. The first extensive use of this material in car equipment was in 1923—by the Illinois Central—in the construction of 25 cars in which it was used in interior sheeting, doors and conduits. In following years, many cars were constructed in which aluminum sheets were used. In 1931, aluminum shapes were made available, and in 1932 the Pennsylvania, in its Altoona shops, constructed a double-deck passenger car for operation on the Long Island. In this car the body and underframe were constructed entirely of aluminum. Aluminum has also been used in the construction of hopper cars, notably those constructed for the transportation of sulphur.

At the Century of Progress, two cars built by the Pullman Company were exhibited, in which aluminum was embodied in the construction. In the two Union Pacific streamline trains now in service and a third under construction, aluminum alloy is used throughout, except in the power plant, bolsters, end sills and trucks.

This cursory study of the growing use of alloy steels, both in structure and rolling stock, justifies the prediction that we have only begun to utilize the possibilities in this field. We may be sure that every means will be taken to develop the technical and economical possibilities of ordinary carbon and copper steels. At the same time, since high strength and corrosion resistant properties are desirable, we may be certain that the new low-alloy high-tensile steels, stainless steels, aluminum, and pehaps additional materials, each in the applications to which it is best adapted, will be used on an increasing scale.

Ultra Short Wave Radio for Caboose to Engine Communication

(*Continued from page 106*)

such as the improvement in service to the public by improved schedules, quicker handling of traffic, the elimination of delay to highway traffic at crossings, etc.

Proposed Equipment

Standard 110-volt, 60-cycle, alternating current is probably best suited to the requirements of train radio. When used on engine or caboose, these equipments will operate in connection with a rotary converter designed to convert the 32 volts standard train voltage to the voltages necessary for operation of the transmitting and receiving equipment. On the engine, the equipment can operate through the converter directly from the headlight generator, which is capable of being operated at all times while the engine is in service.

In the caboose it will be necessary to install some form of power supply. Many forms, such as air engines, gasoline engines, etc., have been considered but it is expected that the final decision will favor the installation of a 32-volt light weight battery of standard car lighting type and a small axle-driven generator.

Simple short antennas required with this new equipment make installation much easier than the longer wave equipment of a few years ago. The design of new tubes, new amplifiers and efficient loud speakers makes the problem of supplying ample volume to the caboose and locomotive a simple task. Modern handphone sets with anti-noise microphones make operation of the sets almost as easy to use as an ordinary telephone.

Both transmitter and receiver are shock mounted in separate steel weatherproof cases. These units may be mounted in any convenient location on the tender and on the roof of the caboose, near the cupola.

The control box, loudspeaker, receiver and transmitter mounting cases, together with the necessary wiring are located as a permanent installation on the locomotive and caboose. As the transmitter and receiver units are readily removable from their mounting cases, they may be removed and used for other trains in the event that the engine or caboose is temporarily transferred from a run where radio service is normally operated to a run where the service has not been established. In cases where locomotives and cabooses are frequently transferred from one division to another, arrangements could be made to transfer all of the equipment from one train to another, provided permanent wiring was installed on all of the engines and cabooses which would be subject to these changes.

Experience has indicated that a power of 15 watts is adequate for ordinary train service on these wave lengths. Means may be provided for transmitting a tone signal for use on any occasion where signals instead of voice transmission may be desirable.

The receiver is a superheterodyne having an undistorted audio output of 4 watts. It features high sensitivity, high audio fidelity, high power output and an automatic volume control especially designed for high frequency reception.

Railway Supply Officers Hold Convention

Proposed coal legislation condemned—Discuss Co-ordinator's reports and mandatory action of divisions

Moffett
G. E. Scott
Chairman

AFTER a suspension of general meetings since 1932, the Purchases and Stores Division of the former American Railway Association, which is now a section of the division of operations and maintenance of the newly-organized Association of American Railways, held a meeting in Chicago on July 23 and 24, with an attendance of approximately 300 members and guests. The meeting was conducted by Chairman G. E. Scott, purchasing agent, Missouri-Kansas-Texas and was addressed by Dr. C. S. Duncan, economist of the association; S. G. Down, president of the Railway Supply Manufacturers' Association; and R. L. Lockwood, director, Section of Purchases, Federal Co-ordinator of Transportation. However the principal business of the meeting was the consideration of regular and special reports of approximately 20 committees dealing with purchasing, storage, scrap, accounting and various other phases of railway supply operations.

Speaking for the railway supply industry, Mr. Down, complimented the Division on its courage in resuming annual meetings and expressed the hope that, as a result of the meeting this year by the P. & S. Division and the meeting previously held by the Mechanical division, it would be possible next year to resume the practice of holding a national exhibit of railway appliances. The appropriateness of planning such an exhibit, he said, has not only been foreshadowed by the many striking developments in transportation which have occurred since the last conventions, but also by the special consideration which the railways are giving to problems of research, and the prospects are for a more complete and challenging exhibit than has heretofore been held in the interests of mechanical progress in rail transportation. Mr. Down also recommended the efforts being made by the Purchases and Stores Division to confer with railway supply manufacturers in working out mutual problems along broad and constructive lines and assured the association that the industry is prepared to co-operate in many constructive ways.

Duncan Discusses Coal Bill

Dr. Duncan devoted his remarks largely to a consideration of the problems confronting the railroads in purchasing coal. Referring to the report of the Federal Co-ordinator that there is much waste in the use of coal by railroads due, as the Co-ordinator stated, to the "general failure to buy coal on a basis of performance per dollar expended, and a lack of standard specifications and standard methods of inspection and testing," Doctor Duncan spoke of the research work on this subject, but continued in part:

While you have been condemned by the Bureau of Service of the Interstate Commerce Commission, re-echoed by the Co-ordinator, for paying living prices to mines on your lines, at the same time you are condemned by proponents of the so-called Guffey-Snyder Coal Bill for driving a hard and cruel bargain with coal operators in order to get your fuel below cost.

The Guffey-Snyder Coal Bill is on the Presidential "must" list for passage at this session of Congress. The bill, as first introduced, contained a provision for allocating tonnage to coal-producing districts and to each mine within each district. As the bill now stands, this allocation feature has disappeared, but the same purpose is to be achieved by means of a price-fixing device. A Coal commission is to be established with nine members, four of whom will represent the industry itself—two from producers and two from labor. The other five must have no financial connection with coal or transportation or oil or gas. This commission is to determine the minimum price which you are to pay for coal. If you have a captive mine, you must join the code as proposed, or pay a 25-per cent tax on the price of your coal. You must pay another tax, with a varying percentage, on all the coal produced, in order to pay off the interest and principal on the $300,000,000 government bond issue for the purchase of coal lands. Labor problems are to be dealt with by a labor board, as provided for in the bill. The coal producers have estimated that the provision of this bill will increase the price of coal directly by 80 cents a ton. On the basis of last year, this would have meant at least six and one-half million dollars additional cost of fuel to Class I railroads.

Contest Winners Present Papers

As a result of a competition held during the year among employees of railway purchasing and stores departments for papers on supply work, honors for the best papers, of approximately 40 submitted, went to Clifton E. Oeschger, chief clerk to division storekeeper, Chicago, Milwaukee, St. Paul & Pacific, Mason City, Iowa, for a paper entitled "Material Savings Versus Pay-Roll Savings" and to Henry R. Kelley, assistant chief clerk, stores department, Gulf, Colorado & Santa Fe, Cleburne, Texas, for a paper on "Surplus Material." As a reward for their success in the competition, the winners read their papers at the meeting. These papers and digests of other papers entered in the competition will be presented in a later issue of *Railway Age*.

Address of Chairman Scott

The first annual meeting of this division was held at Atlantic City, N. J., in June, 1920. This, therefore, terminates the 16th year of its existence. While the past has brought numerous

C. B. Tobey
Vice-Chairman

W. J. Farrell
Secretary

F. S. Austin
B. & A.

J. L. Bennett
C. of Ga.

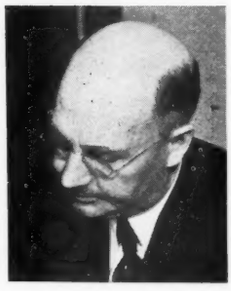
E. A. Clifford
C. & N. W.

J. U. King
A. C. L.

J. C. Kirk
C. R. I. & P.

L. P. Krampf
M. P.

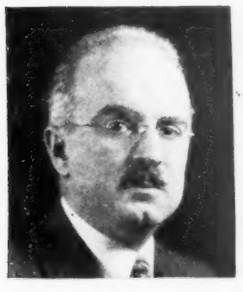
A. C. Mann
I. C.



H. M. Smith
N. P.

A. L. Sorenson
Erie

L. C. Thomson
C. Nat'l



C. E. Walsh
Penna.

L. B. Wood
S. P.-T. & L.

General Committee, Division VI

Photos of H. P. McQuilkin, Baltimore & Ohio, and G. H. Walder, Chicago, Milwaukee St. Paul & Pacific, not available.

fundamental changes and progress in the handling of the affairs of the Division, the outlook for the future seems to hold promise of a much wider range of usefulness, for the reason that the executives of the Association of American Railroads expect the Division to be the investigating and reporting agency of all methods and practices relative to purchases and stores on the railroads and to be solely responsible for its recommendations.

More Authority

The A.A.R. has approved, with certain modifications, the general plan of organization of the Purchases and Stores Division and the method of procedure that has applied in the past. The recommended practices, however, are to be voted upon by letter ballot subsequent to their approval at the annual meetings, and, where such reports contain practices that should be made mandatory by the Association, the letter ballots shall so indicate. This is a new departure for the Division and emphasizes that its activities must necessarily be painstaking and definite as to recommendations made to the executives.

The Association has approved the General committee's recent recommendation that subject committees be limited to seven members. At the same time, the personnel of the roads participating in committee work was reduced from 176 to 106. Besides being more economical, this will impress members that their selection for committee work is something to be sought. The requirement that the members of subject committees shall be drawn from each purchasing or stores group territory will also make the member a contact man for his subject within the group to which he is attached. Recommendations of subject committees will thus represent the reaction of practically all the membership of the Division rather than only that of the individuals engaged in the subject committee work.

Simplification and Standardization was one of the early subjects advocated for study by R. L. Lockwood, director, Section of Purchases, Federal Co-ordinator of Transportation, and is one which the committees of the Division in past years have shown to have great possibilities for economy. Many surveys have been made by the Section of Purchases with the assistance of our members. Early in 1934, the Co-ordinator suggested that Boards of Review should be established in seven regions of the United States, located according to traffic subdivisions, which contemplated organizations to receive and review all purchase orders issued by the carriers, to study the adherence to A.R.A. standards, the routing of company material and the difference in prices paid. Following a trial, the Co-ordinator abandoned the plan with the assurance that six Group Committees located in the East, South, Central West, Northwest, Southwest and Far West would be organized, and the Reviewing Board Committee, appointed by the General committee, directs this work under the revised name of Purchasing Group Advisory committee. The establishment of the Purchasing and Stores Group committees was effected last year. These meetings are to be continued.

Study Codes

Many problems presented themselves with the inauguration of the N.R.A. and the establishment of the Codes of Fair Competition, and the Association of Railway Executives, in September, 1933, appointed a committee consisting of C. D. Young, vice-president, purchasing, Pennsylvania, D. C. Curtis, chief purchasing officer, Chicago, Milwaukee, St. Paul & Pacific, and A. C. Mann, vice-president, purchasing, Illinois Central, to study inconsistencies in adopted and approved codes affecting purchases of railroad material. This committee was later enlarged to include E. A. Clifford, general purchasing agent, Chicago & North Western, A. W. Munster, vice-president, purchasing, Boston & Maine, and J. L. Bennett, purchasing Agent, Central of Georgia, and has been known as the Code Committee. The chairman was always a member ex-officio, and at all times the committee collaborated with the Division.

The Advisory Committee of the Association of Railway Executives, in November, 1933, authorized the Division to appoint special committees for each commodity to participate in informal discussions with industries regarding provisions of the codes in so far as railroad purchases were concerned. All of these committees were directed by a member of the Code Committee to secure co-ordinated effort. Code prices, definitions and trade practices were considered by a major activity of all purchasing officers during the past two years and have required much study and investigation to prevent the imposition of exorbitant prices and hindrance to trading. The N. R. A. did not solicit the

Code Committee's advice until January, 1934, when the Car Builders' Code was under consideration. The results of the committee's efforts in connection with the coal, oil, steel, lumber, tie, car builders' and other codes have been beneficial to the carriers. During the consideration of these matters, the membership was advised by the issuance of bulletins which contained current items of importance relating to the Code Committee's activities and other subjects being considered which we thought would be of interest.

The former Code committee has been reappointed and will continue its activities under the direction of the General Committee. The committee is now known as the Special Purchasing committee and consists of A. C. Mann, chairman; W. C. Bower, vice-chairman, and C. E. Walsh, D. C. Curtis, E. A. Clifford, A. W. Munster, J. L. Bennett and G. E. Scott as approved by the Association.

There were only 10 committees of the Division functioning during the first year of its activity. The number was 33 during the past year, not including the special committees on codes and current problems. While most of the activities in the past three years have concerned the purchasing officers, because of the upheaval in trade practices arising out of the codes and the investigations of the Federal Co-ordinator, the subject committee work has progressed, and 20 or more committees will report this year. By an amendment to the rules of order this year, it is proposed to make the acceptance of committee appointments mandatory.

A General Reclamation committee, composed of representatives of the Mechanical, Engineering and this Division, was established for the purpose of effecting a more co-ordinated report on this important subject, and it is expected that this committee will consider and report upon all phases of reclamation for the Association. A Joint Committee on Inspection of Materials, composed of representatives of the Mechanical, Engineering and Purchases and Stores Divisions, has made extensive investigations, and it is expected that its report will be ready to submit to the Association in the near future. A Committee on Fuel has collaborated with representatives from the Mechanical Division on the subject of methods for rating locomotive coal and its inspection, and in a report submitted to the members on February 19, it was recommended that the method of rating recommended by the committee be adopted during a test period, and the inspection feature was made a recommended practice. A Joint Committee on Material Store Expenses, composed of representatives of the Purchases and Stores and Accounting divisions, is also making progress. These joint committees are mentioned particularly, as they have an important bearing on the division's activities. Where approval of problems integrated with other divisions is necessary, it is obtained through J. R. Downes, vice-president, operations and maintenance, A. A. R.

Material Classification

F. M. McMahon, Chairman*

As a result of survey made during the year, information has been obtained on the adoption and use of the Standard Material Classification, as follows: Total observance, 190,442 miles, or 65 per cent; partial observance, 51,899 miles, or 18 per cent; non-observance, 35,481 miles, or 12 per cent; no replies, 16,108 miles, or 5 per cent. The compilation is based on 157 railroads having full membership in the Association, representing 293,930 miles. The degree of adherence indicates considerable progress and several railroads that are observing the classification in part expect to adopt it in the near future. It is recommended that no basic changes be made in the present classification and that all railroads should give immediate consideration to its adoption.

A list of new items to be included in the classification was presented.

Discussion.—The committee's recommendation that automobile-type and Diesel engines should be included in the same classification and that barrels for fire protection should be placed in the same classification with car wash brushes precipitated a discussion in which A. J. Munn (G. N.) took the position that the classification now used by the railroads was originally developed largely from an accounting standpoint and that the entire classification should be revised by making a new one which would more nearly serve the considerations of storage and sources of supply. He was supported by A. S. McKelligon (S. P.), who contended that the classification at present was a source of expense rather than a source of economy. The present classification was defended by J. C. Kirk (C. R. I. & P.) on the ground that the classification, while not perfect, serves a useful purpose and that any attempt to revise it would throw many years of work into the discard. After further discussion, the committee report was adopted as read.

* General Storekeeper, New York Central.

Report on Stores Expense

C. E. Smith, Chairman*

The committee reviewed the 1933 report of the Reclamation committee on the analysis of accounting for scrap and reclamation plants, and recommended revisions in the forms to be used. In the opinion of the committee, these reports will be of value in enabling supervisory officers to follow the trend of costs, but, in view of different conditions on different railroads, the various kinds and amounts of scrap handled, and other conditions, they cannot be used in connection with comparisons of costs on different railroads.

The form of classified stock-balance sheet that may be used by the individual railroads need only be made to meet the individual railroad's requirements, assuming the disbursements' column separates the materials so that the figures can be properly reported for the semi-annual material stock report and include only disbursements to closed accounts. The committee does not favor the separation of stores employees in I. C. C. wage statistics.

The opinion was expressed that the question as to the values to be placed on released and repaired materials is one of managerial policy, and it was decided to defer consideration of this subject until the Committee on Material Accounting Practices, representing various eastern railroads, has submitted a report.

The joint committee of the Purchases and Stores and the Accounting divisions† has developed that there is a wide variation in the items charged and credited to material store expenses on different railroads and, in order to secure uniformity in accounting practices, recommends: That the handling costs of materials transferred between storehouses, including sub-stores' stocks and materials delivered by truck, or otherwise, for shipment to the line, shall be charged to material store expenses; that the cost of delivery of material from storehouses and sub-stores' stocks to users at roundhouses, car and locomotive shops, car repair yards, passenger yards and other points of use, shall not be charged to material store expenses; that the cost of delivery of material released, manufactured, reclaimed or repaired, from shop to storehouses or sub-stores, shall not be charged to material store expenses; that the cost of handling at storage yards, if any, and the cost of inspection of ballast, rail, ties and fuel, shall not be charged to material store expenses, but shall be included in the cost of such material; that no charge shall be made to material store expenses for scrap handling costs, such costs being charged against the proceeds from sale of scrap; that a separate primary operating expense account be prescribed for material store expenses, as has been heretofore recommended by the Railway Accounting Officers' Association and concurred in by Division VI, the portion of material store expenses chargeable to accounts other than operating expenses being credited to this account.

The items of expense which should be included in material store expenses when incurred in connection with purchasing and stores department operations are: Accounting of invoices and disbursements, including the preparation of material stock reports and distributions to operating expenses and other accounts; automobile and truck wages and supplies; batteries and cost of charging; bridge tolls for vehicles; cleaning storehouses and stores yards; containers for handling and shipping stores materials; cost of containers, boxes, etc., and repairs thereto; wages of crane operators and fuel, power and lubricants; drayage; elevator wages; material handling equipment wages and supplies; equipment and furniture repairs and replacement; fire extinguisher recharging; fuel oil handling; gasoline and oil for automobiles, trucks and tractors; inspection of materials, except rail, fuel, ties or items where the cost can be directly allocated to the material; inventory counting, marking, extending, listing, pricing and summarizing; janitors' wages based on time; telephone, telegraph, heat, light, power, ice, towels, water, postage and fire alarms; cost of packing and drayage of household effects of employees transferred; office and employee expenses in purchasing and stores department work; oil-house men—except for pressing grease and preparing packing; physical examination of employees; proportion for heat, light and power furnished; personal injuries to employees when not directly assignable to some primary account; rental of offices and buildings; stationery and office supplies; stores repairs where not specifically provided for in primary operating expense accounts; subscriptions to magazines; supplies used; supply car expenses and pay of attendants, and supplies for business cars when used by purchasing and stores department officers; switching at storehouses, on the basis of actual time consumed; and watchmen's wages based on time. The proposed charges to material store expenses, shown in the above

* Vice-President, New York, New Haven & Hartford.
† F. J. Riddle, statistician, Stores Department, Pennsylvania, chairman.

list, do not, in all cases, conform to the requirements of the present I. C. C. Accounting Classification.

Discussion.—The recommendation of the Joint Committee of Supply and accounting officers favoring the lumping of stores expense into a primary account met with what appeared to be growing opposition. A. S. McKelligon (S. P.) noted the committee's recognition that A.F.E.'s must continue to be charged their proportion of expense and contended that the present distribution of stores expense is the better way, provided appropriate provisions are made to distribute the charges on all railroads on a uniform basis. W. S. Morehead (I. C.) stated that, while once in favor of the primary account as a past member of the committee, he had since become skeptical of the results to be gained and favored continuation of the present method of distributing cost. L. F. Duvall (A. C. L.) and H. H. Laughton (Sou.) supported the committee's recommendation. C. B. Hall (Penna.) took the position that the handling of stores expense was not so important as uniformity in practice. Following remarks from U. K. Hall (U. P.) on the importance of eliminating wide variations now prevalent in valuing second-hand material and an explanation from A. L. Sorensen, Erie, of the committee that the entire subject will receive further consideration of the Joint committee, the report was accepted as read.

Report on Scrap Handling

James Young, Chairman*

The A. A. R. Classification numbers for scrap should be universally adopted. Where it is not necessary for a railroad to maintain all classes, the classes used should be designated by the corresponding basic A. A. R. Classification number. Where railroads have found it necessary to include additional classes not covered by the present classification, the numbers for such classes should be assigned on application, with a description, by the secretary of the Division.

It is suggested that scrap supervisors acquaint themselves with conditions at the consuming points, ascertaining what classes the consumer handles and what he expects in those classes, thus avoiding unnecessary sorting of scrap which, when received by the consumer, might be thrown together.

The committee finds that 75 railroads, representing 202,157 miles, have adopted and are using the standard scrap classification. A total of 13 railroads, representing 47,307 miles, are using the classification in modified form; and 22 railroads, representing 18,664 miles, are not using the classification. All railroads should adopt and use the standard classification, together with the changes recommended, in order to obtain uniformity.

Scrap Arbitration

The Scrap Arbitration committee has considered two cases of controversial claims submitted during the year and have rendered decisions as follows:

Case No. 2.—Classification No. 35—Structural, Wrought Iron and Steel Uncut—rejection of a shipment of three cars sold under classification No. 35 because the shipment containing car sides. The shipper stated that cars contained approximately 70 per cent of steel underframes, but were topped with car sides and ends. It was the unanimous opinion of the committee, according to wording of Classification 35, that car sides should not be included. If free from attachments, they should be included in Class 30. If they have attachments, they should be included under Class 45.

Case No. 3.—Classification No. 27—Rail, Steel No. 1—two cars sold and rejected on the claim that the rail did not comply with specifications in that the scrap included rails having badly worn heads, rails with thin edges probably caused by brine, and rails mashed and showing slivers along the side of the head. The scrap was sold as No. 27 Rail, Steel No. 1—Standard section tee-rails, original weight 50 lb. per yd. or heavier, 5 ft. long and over, suitable for re-rolling, and free from bent and twisted rails, frogs, switch and guard rails, or rails with split heads and broken flanges. The railroad stated that the quality of the rail was no different from that which had been shipped to other companies as No. 1 rail. It was the unanimous opinion of the committee that this rail, when purchased, was intended for use for rolling into lighter section rail, and that the specification should be interpreted as meaning just that.

The report included the terms covering the sale of scrap iron and steel, as revised to June, 1932; also a reproduction of the standard scrap classification.

Discussion.—A. L. Prentice (N. Y. C.) contended that the specification for malleable iron should eliminate the requirement that the metal should be free from foreign material and B. B. Melgaard (C. M. St. P. & P.) suggested that, in view of the claims arising out of the rejection of certain rails, that specifications requiring that rail should be suitable for re-rolling should be more clearly defined. It was also contended that, in view of market conditions and the failure of scrap dealers to take prompt delivery on scrap purchased, agreements covering scrap sales should be revised to enable the railways to charge interest and carrying charges. It was explained by C. B. Tobey of the committee, however, that various questions raised dealt principally with specifications which had been in use on railroads for many years or were of local application and, without further discussion, the committee's report was adopted as read.

* Assistant Purchasing Agent, Pennsylvania.

Report on General Reclamation†

I. C. Bon, Chairman*

Study has been given to the reclamation of items of material common to all railroads. In addition, some research work has been carried on and tests made to ascertain the merits of service to be obtained from items of reclaimed material. Study up to the present time covers items of material being reclaimed by the railroads.

Consideration has been given to the preparation of a Manual, to include exhibits, process, specifications and tolerance permissible in the reclamation and repairs of all items of material. The Manual is to be of a loose-leaf form and revised from time to time by additional changes that may affect the rules, etc. It was the consensus that centralized reclamation plants on the individual railroads should be located adjacent to the scrap plant and under the same supervision to insure minimum handling expense. The responsibility as to what should be reclaimed from incoming material rests on an inspection made by local forces. All reclaimed materials should be subject to inspection by the engineer of tests or testing department.

Reclamation committees on the individual railroads consisting of representatives of the various using departments would promote economy in the conservation, handling and the elimination of waste material. Due to obtaining vast amounts of material from dismantled equipment, etc., a surplus has accumulated to the extent that railroads are selling or exchanging items of material. This should also apply to reclaimed material. There has been some misinterpretation as to just what may be considered reclaimed or second-hand material. In the past, this has been decided by the railroads offering such material for exchange or sale. Attention has been directed to cases where no tolerance of wear was taken into consideration, or the parts were not in a serviceable condition.

Two subcommittees, appointed for the purpose of making thorough investigations and recommending practices which, in the opinion of the committee, should be universally adopted, reported items of material receiving consideration, investigations as to the merits of service and profitable manufacture, reclamation and repairs. The committee also submitted a specification for repairs to freight-equipment brake beams.

Journal Box Packing

Class I railroads are spending around 10 million dollars annually, even in the depression years, for oil and waste. Some railroads have contracted the reclamation of oil and waste packing to outside concerns, while most railroads have purchased the necessary machinery and are doing the work with their own forces with a profitable return on the investment, and are producing a finished product that fully meets A.A.R. specifications. The committee finds that the processing of journal packing is similar on most railroads. A number of railroads are installing the centrifugal process for car oil reclamation, and claim that a better product is obtained with less waste.

Crank-Case Oil

Processing of crank-case oil from motor cars, locomotives, tractors, trucks, etc., has been in vogue the past decade, and the amount of equipment in which such lubrication is used is rapidly increasing. A study discloses a variation in the cost and quality of doing the work and the per cent of oil reclamed. Some roads are using a high-grade lubricating oil and waste, while others are using cheaper grades. Some roads are using more efficient mechanical equipment. Some roads are changing the oil in crank cases more frequently than other lines, based on the miles run. Most roads are using gasoline for fuel, while some are using distillate. Where distillate is used, the dilution in crank case is heavier than with gasoline. These differences in practices make

† Joint Committee with Mechanical and Engineering Divisions.
* Superintendent of Reclamation, Wabash.

it difficult to compare the operating results in the reclamation of lubricating oils and waste packing on a uniform basis.

Discussion.—Following an explanation that the report was a progress report of the supply, engineering and mechanical divisions, it was accepted without further discussion.

Report on Forest Products

J. R. McGrenera, Chairman*

As a result of a discussion of the benefits that might be derived from the general use of the A. A. R. lumber specifications, it was learned that many of the Eastern railroads had either adopted or expect to adopt the specifications. Some of the railroads have found it desirable to write their own specifications, based on the A. A. R. specifications, where optional provisions are provided in the latter, the railroad indicating the optional grades required. Since many producers of lumber are not familiar with the A. A. R. specifications, it would be helpful if the roads would issue their own specifications, indicating the grade required where optional grades are provided in the A. A. R. specifications. The committee has no thought that a railroad should deviate from the language of the A. A. R. specifications when writing its own specifications, the specification simply being a redraft of that portion of the A. A. R. specifications applicable to the individual railroad. Two eastern railroads have prepared specifications for their individual needs and have quoted the optional grade shown in the A. A. R. specifications.

It was developed that the western railroads are opposed to the adoption of the A. A. R. specifications. While the Mechanical division is supposed to have unanimously endorsed the A. A. R. lumber specifications, many purchasing and supply officers were not consulted before their adoption and, in some instances, their opinions were not considered and they are finding that some mills know nothing about the specifications, or find no particular advantage in their use from a price standpoint over specifications under which they were buying the material.

For example, it was found that the West Coast mills have not familiarized themselves with the A. A. R. specifications, contending that they do not apply to their woods, and, when quoting on a bill of material specifying A. A. R. specifications, the mills select a grade from the West Coast Lumbermen's Association book of rules and furnish a higher grade of material than actually called for in the A. A. R. specifications. The WCLA Grading Rules provide for car material grading rules which were set up in conjunction with the wishes of the railroads using West Coast woods as a whole. Both the railroads and lumber mills feel that these rules are more in keeping with the adoption of a standard than the A. A. R. rules. However, the committee feels that the WCLA Grading Rules provide for too many grades of material for similar purposes or uses, and can see no reason why the Western railroads should not agree on the same number of grades as provided for in the A. A. R. specifications for various uses.

The committee recommends that the western railroads, the West Coat lumbermen and the Mechanical Division should agree on a specification that would closely follow the present A. A. R. specifications with modifications necessary to fit the West Coast woods.

Crosstie Specifications

A committee of five members has been appointed to make an investigation of crosstie specifications and inspection employed in the southwestern territory. The scope of this committee's activities will consist of a general comparison of specifications of all railroads in the group, ascertaining the specifications under which the ties are purchased. When this has been done, the committee will make a joint reinspection of ties actually received by individual railroads to ascertain whether or not they meet the specifications under which they were accepted.

Discussion.—The report was accompanied by a prepared statement of Chairman Scott, which referred especially to allegations made in a recent report of the Federal Co-ordinator of waste in tie buying through the failure of railroads to follow specifications and to looseness in inspection practices. In defense of the railroads, the chairman reviewed the success of a committee on behalf of the railroads in avoiding the application of fixed prices to ties under the codes. He also stressed at length the unfortunate effects on the entire crosstie market of practices resorted to by some railroads in encouraging an overgrading of ties in inspection for the purpose of obtaining more favorable prices than those obtained by other railroads that insist on rigid inspection. In some cases one railroad has accepted ties that another has rejected. He expressed disappointment at the disinclination of the Railway Tie Association to conduct an open discussion of this problem at its convention in May.

D. C. Curtiss (C. M. St. P. & P.) said that specifications in the course of preparation should be invariably referred to the Division before adoption by railroads, claiming that a failure to utilize the expert knowledge of the lumber buyers might easily result in increases of from $2 to $5 per 1,000 bd. ft., whereupon U. K. Hall (U.P.) emphasized that it would nevertheless be unwise in the face of the present requirements of the railroads for car lumber to let considerations of price result in the adoption of specifications permitting the purchase of inferior materials. The report was accepted.

* General Tie and Timber Inspector, Atchison, Topeka & Santa Fe.

Pricing and Inventory

W. S. Morehead, Chairman*

In order to determine to what extent the recommendations of 1932 were being followed, a questionnaire was submitted to the railroads and 58 replies received. Pricing is performed by the users of material in accordance with recommended practice on 15 roads, while the practice of pricing direct from price books or price cards in the office is the practice on 43 roads. Prior to 1932, pricing was performed by the issuers of material in accordance with recommended practice on 12 roads of 45 reporting, and the practice of pricing from price books or price cards in the office was followed on 35 roads. This indicates that practically no fundamental change in pricing practices has been made.

The committee is of the opinion that there are a number of railroads who have not given much consideration to the advisability of adopting the recommendation as made at the 1932 annual meeting, and recommends that no change be made in this recommended practice. It urges the members who have not adopted this recommendation to give it serious thought, study and investigation, with a view to complying with the Division's recommended practice.

Investigation during the year shows little, if any, change in the method of taking annual inventories from the practice in 1933 and, inasmuch as annual inventories on the majority of railroads are taken in accordance with instructions issued by the accounting department, it is recommended that a joint committee give the matter additional study and investigation.

Purchasing Records

H. M. Rainie, Chairman†

Although committees have reported favorably on the use of the requisition-order year after year since 1927, little progress has been made. Railroads representing 54 per cent of railroad mileage express a disinclination to adopt the requisition-order method. The method eliminates writing orders in the purchasing office, checking orders against requisitions in the purchasing office, errors in quantity and description that occur in rewriting, pricing and extending requisitions, loss of time in placing orders on vendors and expense for stationery and supplies. Co-operation of the purchasing department in notifying the stores department of changes in sources of supply will effectively keep the number of "rewrites" down to a minimum. The railroads that have adopted the method have forms in use that have worked out satisfactorily over a period of years and are effecting economy.

Telegraphic Code

The A. A. R., Purchases and Stores Division Telegraphic Code, was adopted as recommended practice in the year 1930, with the idea of reducing expense to the railroads. From information obtained from the railroads canvassed who are using the code, savings of at least 18 per cent to 20 per cent are being realized. Information compiled during 1934 shows that some progress has been made, but railroads representing 50 per cent of railroad mileage are not observing the practice. A more detailed survey is now being conducted.

Railroad Mail

The Transportation division of the Association has had in effect for several years regulations on the proper handling of railroad business mail, off line and on line. It is not necessary to send railroad business mail between the railroads at regular U. S. Mail rates. If the instructions are carried out as outlined in the circular, mail can be forwarded to other railroads for three cents postage. A surplus list was received by one off-line railroad with a postage charge of 57 cents, although it could

* General Storekeeper, Illinois Central.
† Purchasing Agent, Boston & Maine.

have been sent for three cents had A. A. R. regulations been followed. If the railroad had forwarded 50 such lists of off-line railroads, under the A. A. R. regulations, the saving would have been $27.

Discussion.—The use of the combined purchase-order form as recommended by the committee was vigorously supported by representatives of several railroads, including W. S. Morehead (I.C.), W. R. Culver (C. & O.) and U. K. Hall (U.P.), all of whom reported successful results with the plan since its introduction on their lines.

Report on Fire Prevention

B. T. Adams, Chairman*

The report of the Railway Fire Protection Association's Committee on Statistics for 1933 indicated that 5,319 fires were reported by 68 railroads from all causes and for all departments during that year, and the total loss was $3,744,949. On that basis, the estimated total fire losses for all roads amounted to $4,243,000, a considerable decrease as compared with previous year when the estimated total loss was $5,104,430, and below the estimated average loss for the 10-year period, 1924 to 1933, which was $6,943,176.

Fires on Storehouse Buildings—1933

Number	Cause	Loss
3	From sparks	$ 78
2	Outside exposure	244
5	Trespassers	5,991
3	Incendiary	2,531
3	Spontaneous ignition	116
1	Rubbish	14
1	Not classified	570
7	Unknown	11,419
25		$20,963

Report on Control of Stocks

M. E. Towner, Chairman†

Analysis of replies received from 26 railroads to the question as to what officer has the authority to determine maximum and minimum stocks to be carried indicated that this rests with the purchasing officer and the store department. It is noted, however, that on some of the railroads the purchasing department and stores department report separately and in some cases to different officers. On the majority of the railroads, the purchasing and stores department consult with the (using) department head on heavy budget items. This includes the president on some properties. Authority and control of ties and lumber are diversified. The purchasing and stores department on a number of railroads have little authority concerning the stock of crossties to be purchased and carried.

Answers to the question as to the officers authorized to originate A. F. E.'s replies indicate reasonably close co-operation with the purchasing and stores departments in the majority of cases. It seems evident, however, that A. F. E.'s, even though applying only to specific jobs, are to some extent handled independently of the purchasing and stores department. Of the 26 railroads reporting, 23 stated that material left over from A. F. E. work finds its way back to store stock. The replies of the three remaining roads are, respectively, "used for regular maintenance"; "held for future use or offered for sale"; and "taken back into store stock if its use in the future is anticipated."

Another factor in stock control is the "contract job." As to the extent that the purchasing and stores department is a deciding or consulting factor in furnishing or obtaining materials included in contract jobs, the reply of 18 railroads was "yes," the reply of 6 railroads was "no," while the reply of 2 railroads was "not always."

Surplus or Obsolete Stock

The quantity of material offered for sale, including a wide range of items from a large number of railroads, indicates that surplus or obsolete stock is a decided factor in stock control. Eight railroads report the material on a regular, prepared form, 10 report by letter, 1 railroad prepares a requisition covering disposal to a department or otherwise, 6 railroads use no report form, and 1 railroad stated that after receiving authority from the using department the purchasing department is requested to sell.

Reports originate with the using department on 11 roads, the purchasing agent on 3 roads, the vice-president on 3 roads, the general storekeeper on 1 road, the comptroller on 2 roads, the president on 1 road, the head of department and purchasing agent on 1 road and the head of department and stores department on 1 road. No time is set for reporting on 21 roads, while one road prepares reports annually and one monthly.

Budgets

A study of the use of budgets developed information as follows:

	M. of E.	M. of W.	Cond. Trans.	Ties & Lbr.	Fuel Coal or Oil	Special Repair Work
No budget	15	12	18	11	16	13
Monthly budget	7	4	5	..	5	..
Monthly (on special work only)	1	..	2	..	..	..
Anually	..	5	..	..	..	..
No budget—except rail, ties and fuel	..	3	..	..	..	..
No budget—except on ties	..	..	..	7	..	..
Annually on ties and B. & B. lumber	..	..	..	2	..	..
Monthly on all items	..	..	..	2	..	..
Requirements estimated by operating vice-presidents	..	..	..	..	1	..
Shop fuel budgeted monthly	..	..	..	..	1	..
Transportation fuel budgeted monthly for locomotive use and annually for stations. No budget for either coal or oil for other departments	..	..	..	..	1	..
M. of E. monthly—M. of W. annually	..	..	..	..	..	1
Monthly, or on program basis, or annually	..	..	..	..	..	10

Budgeting is a factor in stock control on 11 railroads; it is not a factor on 14 railroads and is used to a limited extent on 1 railroad.

Turnover

Stock on hand, maximum or minimum, especially regular stock items, is decidedly affected by the factor of time elapsed in procurement. The use of the requisition form as an order form is notable. Procurement on line or from nearby points is practiced wherever possible and a long haul is eliminated. Drawing from the manufacturer's supply house or nearby stock for quick shipment has become more of an accepted practice than a few years ago, especially where a contract or agreement is used. Blanket orders are used to some extent, with shipping instructions resting in the hands of the chief stores officer.

Overpluses of "on line" stock are handled by the stores department on 19 roads, by the stores and department head on 3 roads, by the chief purchasing officer and department head on 1 road, and by a special committee on 1 road. One road reported that the line stock is under the jurisdiction of the storekeeper and that he is responsible for overstocks on the line the same as for overstocks at the storehouse. While the storekeeper is not in daily touch with this material, he makes periodical checks with representatives of the using departments and arranges for transfers or return to the storehouse. Another road reported that all materials remain in the material and supplies account until they are actually used; therefore, any surplus that may develop at any point on the railroad is still under the control of the general storekeeper, and his authority is all that is necessary for its disposition.

Direct Shipment to the Job

The question was raised as to the method of following up material to its final use. One road reported that the disposition of this material would depend upon its nature and the job. If the material is not easily damaged or will not deteriorate and there is simply a short delay in the work, the material is left there. If a job is definitely cancelled, the material is brought back to the source of supply. If there is an indefinite delay and the material can be used at some other point, it is moved there. Small material is brought back to the store. Another road reported that material shipped direct to the point of use is carried in stock until used, and the accounting department has regular forms which are submitted monthly by section foremen and bridge and building foremen as to the material on hand, material used, etc. These reports show what is on the division and information given in these reports is also supplemented by periodical inspections made by division staff and others. On another road a temporary store for very large projects is set up on the job and a stores representative is in charge.

To insure effective control and to properly co-ordinate procurement with actual needs, it is essential that absolute authority and entire responsibility for material stocks be vested in the purchasing and stores departments. Purchasing and stores officers

* District Storekeeper, Illinois Central.
† General Purchasing Agent, Western Maryland.

should be the first factor in securing information for tests or for consideration when any material or item is to be superseded, and must help in decisions which affect or control emergency purchases and the sale of any and all items of material or equipment.

Shop Manufacture

Railroad shops, generally, are not designed to compete with the up-to-date manufacturing plant on regular purchasable goods. Shop forces, in the main, are not employed to manufacture items, as these men can earn more money in repairing equipment. The time of supervisory officers should be more valuable in effecting "shop output" than in directing manufacturing effort. Any and all items being manufactured in railroad shops should be identified or classified as regularly used items or items regularly manufactured in quantity, and, except in emergency or where the consumption is very small, or where prices are arbitrarily and obviously excessive, material should be purchased rather than manufactured.

Report on New Ideas and Economies

C. K. Reasor, Chairman*

The committee, through questionnaires and by personal investigations and attendance at group meetings, has listed practices which have recently been placed in effect on some railroads. The practices include the use of addressograph plates made for lumber and scrap address lists; reducing the amount of detail entered in price records; concentration of pricing in one bureau; the pre-writing and pricing of inventory sheets; eliminating the checking by actual count on many interdepartmental shipments; the use of the requisition-order form; ordering material in larger quantities subject to release; making return-sale orders on a yearly basis for material of standard character such as cement sacks, steel drums, cylinders, barrels, etc.; changing the method of tallying material by using the shipping notice or copy of the P. A. order instead of writing all items received on tally form; affixing the class number to requisition and order numbers, and marking shipments accordingly; using embossed tags on outside material racks to eliminate constant stencilling; using a special colored tag on all special materials received, showing the date received, order, description, purpose for which ordered, value and name of the officer requesting it; using another colored tag on all special material returned from the using department for credit, showing the date of return description, value and by whom returned; having storekeepers trace shippers direct and using the stores department truck in transferring freight between freight houses of different railroads.

Other practices include that of exchanging certain old items for new when issuing material at counters. This reduces issues and permits examination of the old material to determine if it is worn out and also if reclamation is possible or economical. Other practices include the elimination of material trays at small points and placing strips of wooden molding on shelves to separate different items of material; carrying an old crossing frog removed from the track as a spare, in lieu of carrying a new crossing frog for protection; preparation of lists of different items of material showing the firms to be asked for prices, making it unnecessary for requisition clerks to write the names of firms to be asked for prices on the requisition; installation of a grease press in the oil house to press grease into shape for the entire railroad; the use of short ends from waste reclamation for firing up engines; the use of sludge from car oil reclamation as a base for front-end paint, also for center-plate grease, ferry slip grease, side bearings, etc.; and placing barrels of oil and paint on rockers or barrel racks so that one man can handle them. They also include the practice of treating emergency stocks of lumber to make it unnecessary to renew it to prevent deterioration; separation of crossties by grades to permit segregated distribution to heavy or lightly traveled divisions; loading car wheels by the double-decking method; island platforms for heavy castings, rods, etc., made from old light-weight rail placed bottom side up and bolted togethed with rods and spaced with pipe nipples; small embossed tags inside storehouses to indicate material, item number and the sizes of such items as bolts; a taping machine with a dampener for wrapping small packages.

Several railroads have a consignment account to cover loaned oxyacetylene welding and cutting equipment which is only paid for when it is lost, stolen or otherwise not available for return. One railroad reports purchasing corrugated deck plates and treads 240 in. long instead of buying them cut to size. Some railroads are purchasing channel iron runners which are welded on the bottom of skids, or using angle iron from dismantled cars for the same purpose. One railroad is using a different color wrapping paper for second-hand driving journal compound, pressed into forms, to distinguish it from new.

Manufacturing Discontinued

Several railroads have found it more economical during the past year to purchase, and have discontinued the manufacture of: Studs, brake pins, engine bolts, wedge bolts, collar pins, steel bushings for brake rigging, etc., brake-beam hangers, coupler yokes, crank pins, car curtains, engineers' seat boxes, mail bags, relay boxes, metal flag boxes, engine curtains and motor-car curtains.

Several railroads report that when the requirements of such items as hand holds, grabs, etc., are large, they find that the size of the order enables them to purchase at a lower figure than their own manufacturing costs. Several railroads are buying pin grease made into stick or candle form without extra cost. One railroad developed during the past year a skid for unloading supply cars which is made from angle-iron rails and steel crossties. Another railroad is developing a chain sling for lifting loaded drums with a crane.

Heretofore white oak switch ties were shipped to a concentration yard, from which point they were distributed as orders were received. Through co-operation with producers on the line, the plan of shipping switch ties direct from shipper's yard to the point of use was inaugurated, separation as to size being made as the ties were inspected and loaded into cars, without additional expense. It was formerly the practice to load all heavy bridge timbers, such as stringers, caps, etc., in coal cars. During the past year, such material has been loaded on flat cars, which facilitates unloading on the line by small bridge gangs.

One railroad reported the use of a brake-beam mounting and dismantling machine. This facility completely dismantles brake beams for slightly less than 9 cents each. This cost includes every incidental move from the scrap dock to the dismantling machine, removing and piling salvaged parts and returning the scrap classified to the yard. The dismantling operations are entirely separated from brake-beam mounting operations. The last three shop orders on which mounted beams were produced developed labor costs only of 16.59 cents per beam for 9,400 beams. This cost covers every phase of necessary operation.

Stationery and Printing

O. B. Mills, Chairman*

Expenditures made for stationery and printing by Class I railroads for the past several years are shown below:

1926....$28,418,710	1929....$25,567,000	1932....$15,320,000
1927.... 26,840,000	1930.... 32,100,000	1933.... 11,628,000
1928.... 25,638,000	1931.... 21,680,000	1934.... 12,884,000

It is recommended that all contracts for tariffs and time tables be made by the purchasing agent. Invoices should be checked against the contract. Mailing lists of shippers to whom tariffs are sent should be carefully checked each year to see if the firms are still in existence. One railroad reports a considerable saving in stationery, printing and postage by doing this.

Letterheads

The size of letterheads has been considered many times in the past. The committee in 1933 recommended that size 7½ in. by 9½ in. be adopted for letterheads and second sheets. Twenty railroads with a mileage of 59,612 have reported using this size, to date. One member railroad purchased 7½-in. by 9½-in. paper of various qualities at a cost of $8,650. The same amount in 8½-in. by 11-in. sheets would have cost $10,797, a difference of $2,147, or a saving of approximately 20 per cent. While not a regular stock size, this paper size is standard and, if railroads generally would adopt the committee's recommendation, it would soon become a stock item.

Some railroads claim to save considerable by carrying in stock paper in large sizes, purchased in case lots, from which small amounts of special sizes are cut. There is a differential on side-seam envelopes, as against center seams or diagonal cut, varying from 4 per cent to 10 per cent, based on the number purchased. Reports show that the side seam has proved to be satisfactory. Statements indicate expenditures of as much as $3,000 per year on one railroad for rubber stamps. It is recommended that all orders for rubber stamps be submitted to the Stationery committee on the individual railroad for investigation and approval.

* Assistant Manager of Stores, Erie.

* Stationery Storekeeper, Pennsylvania.

Adopting this practice, one railroad reduced its costs in one year from $2,810 to $1,493, and in the following year to $1,098.

Postage Meters

One railroad reports that postage meters are used by the treasurer in sending out checks of all kinds. Another railroad reports it is able to seal, stamp and cancel postage on envelopes at the rate of 10,000 per hr., this speed being an important factor particularly when mailing dividend letters. The meter machine saves delay in the post-office, as the letters do not have to pass through the cancellation department. The practice also insures protection against misuse and obviates carrying a large quantity of postage stamps. The machines are rented from the manufacturer.

Simplification and Standardization

A. G. Follette, Chairman*

The 1934 report proposed the organization of a simplification and standardization committee on each railroad, and the suggestion has been received that this be extended to cover all switching and terminal companies. Normally, switching and terminal companies have small store organizations which would probably not have the necessary authority to enforce simplification. The committee recommends as a substitute that the simplification committees of individual railroads entering a terminal be instructed by the association to co-operate in the simplification of terminal stock in co-operation with a designated representative of the terminal company.

The attention of the committee has been drawn to the varied methods of packaging unit-cell flashlight batteries by the manufacturers, in view of the practice of manufacturers in prepaying freight on orders of 100 lb. weight or over. The committee is agreed that the manufacturers should standardize on a uniform package quantity for the convenience in ordering. When a standard package is adopted, the purchasing agents can probably make satisfactory arrangements as to the prepayment of freight.

Hand Lanterns

Representatives of four manufacturers met with the committee to discuss hand lanterns and a fifth manufacturer has since been contacted by the chairman. A representative of the Signal section suggested the subject be referred to that section for revision of the plan to show one shape of globe only. The committee recommends that this be done and also that the Signal section be requested to develop a skeleton design of hand lantern with sufficient dimensions to provide for interchangeability of globes and founts and to have adjustable bails. If feasible, interchangeability of burners should also be brought about in conjunction with the manufacturers.

Lists of drills used were furnished by 27 representative railroads, and 147 sizes were reported, of which 31 sizes are recommended as standard in diameters 1/32 in. to 1/2 in., in 1/64 in. steps. While some railroads use "numbered" sizes in drills, it is recommended that such sizes be discontinued as stock items. Lists of cap screws used by 27 railroads were received and summarized, including 288 sizes and threads. Of these, 74 sizes are recommended as standard. Lists were received from 27 representative railroads showing a total number of 228 diameters and threads of hand and machine screws, of which 44 sizes are recommended as standard.

Brushes

Lists showing sizes of various brushes used and specifications covering them were received from 27 railroads. On the basis of information furnished, the list of brushes recommended in 1929 has been revised. The list shows a great variety of dimensions for similar brushes purchased by the several railroads, particularly as to width and thickness of brushes and quality, and kind and length of bristles. There is no reason why standardization of width and thickness of similar brushes cannot be accomplished within certain tolerances. Bristles and hair used in the manufacture of brushes are natural by-products and, therefore, quality and length are not entirely under control of either the producers or the manufacturers of brushes. To establish a single quality and length of bristle for similar brushes might seriously upset the market for this by-product and lead to excessive prices for the standard brushes established. In developing standard specifications for brushes, this condition should be recognized and more than one grade should be provided in brushes for similar purposes, particularly in sizes which require a comparatively large quantity of bristles per brush.

* General Material Supervisor, Pennsylvania.

Reference Numbers

The committee received the suggestion from the General committee that common reference numbers for all staple items of material for all railroads should receive consideration as a means of reducing expenses. It will be necessary to determine what commodities would lend themselves to this practice and what system of numbering would be the most suitable for the purpose if the practice should ever be adopted, and the committee has undertaken a study along these lines.

A list of Simplified Practice Recommendations of the U. S. Department of Commerce was sent to all member railroads with the request that they make a study of the recommendations and bring their practice into conformity so far as feasible and then to advise the percentage of adherence accomplished. Fifty-one replies have been received, 15 of which showed either an incomplete study or did not show definite percentages. The extent of adherence is shown in the table.

	Reports	Total Adherence	Partial Adherence
Woven wire fencing	31	27	4
Forged tools (See AREA track tool manual)	30	21	9
Asbestos mill board and paper	30	25	5
Steel barrels and drums	26	24	2
Cotton duck	34	27	7
Milling cutters	27	17	10
Grinding wheels	32	21	11
Carbon brushes	30	23	7
Packaging of carriage, machine and lag bolts	33	25	8
Roller bearings	21	17	4
Metal and fibre flash-light cases	25	22	3
Turn buckles	30	24	6
Skid platforms	21	17	4
Packaging of flash-light batteries	31	27	4
Wire insect screen cloth	30	24	6
Metal lath	19	17	2
Asphalt	16	14	2
Steel lockers	21	17	4
Steel reinforcing spirals	20	18	2
Steel reinforcing bars	27	25	2
Steel windows, solid section	17	15	2
Metal partitions for toilets and showers	16	13	3

Discussion.—Chairman Follett stated in presenting the report that the committee agreed with the suggestion received prior to the meeting that simplification committees on each road should meet at least twice a year, but expressed the committee's view that better results would be obtained from the follow-up work of the Division committee. He explained that lack of information on the definite savings from simplification is the result of the inadequate records being kept by the railroads, and added to the report the recommendation that the simplification committees of railroads should keep a record of the savings accomplished and prepare reports showing the number of committee meetings held, items of stock eliminated, total book value of such stock, cubic feet of bin space and square feet of platform space released for more active materials, the book value of surplus or obsolete material disposed of, cubic feet of space so released, and other savings.

J. U. King (Atlantic Coast Line) emphasized the valuable work of the committee and stated that all its reports have been studied in detail on the Atlantic Coast Line with much benefit to the road. I. C. Bon (Wabash) predicted that the use of reference numbers as recommended would prove especially valuable in the work of the General Reclamation Committee, and M. E. Towner (Western Maryland) added that better co-operation between manufacturers and consumers of railway materials has resulted in halving the annual expenditures for some purchasing organizations to notify consumers of increases in prices on specific commodities and request such consideration of specifications as will assure reductions in annual expenditures for the materials in question.

Report on Specialty Purchasing

P. L. Grammer, Chairman*

Among methods which could be followed to advantage in determining the relative cost of special patented devices would be an analysis of the cost of individual parts comprising a complete machine or apparatus, if purchased separately, as compared with the purchase price of a complete unit; also, whether such repair parts or replacement parts could be manufactured by the railroad itself, or bought from some other manufacturer than the one marketing the complete machine.

Special restrictions should be imposed on ordering repair parts for any new types of special devices in advance of actual require-

* Assistant Purchasing Agent, Pennsylvania.

ments. These parts are usually expensive and experience shows that many repair parts ordered in anticipation of subsequent needs have not been used and were finally scrapped. It will be found less expensive to wait for the delivery of repair parts from manufacturers or dealers than to stock these items. However, stocking of repair parts for certain devices is justified where the use has developed a regular consumption. The parts of all proprietary items of tools and equipment should be carefully tabulated and analyzed as a basis for establishing the best arrangements for purchases. There are 240 different parts of a track motor car that can be purchased competitively in the open market.

Purchases of repair parts for special devices from firms furnishing competing materials instead of from manufacturers of complete devices should be made only after a thorough investigation as to the suitability of the competitive repair parts. Low-priced substitutes may be found more expensive in the long run. Railroads should also protect themselves against any possible claims for alleged patent infringement.

In view of constantly-changing conditions, it is impossible to recommend any hard and fast rules for contracting or arranging in advance for requirements for materials to be delivered in the future. Market conditions, the extent of competition and the distance from the source of supply should control. Manufacturers should not be asked to make up special materals and supplies for prospective prompt deliveries as required, unless covered by formal contract arrangement, clearly defining the purchaser's obligations to take such materials and supplies within a given period.

The prompt replenishment of stocks is always an important factor in keeping down to a minimum the general working stocks carried in local and general stores. All roads should consider the release-order system, as described in the 1932 report, which gives details of a system of local purchases, where practicable, delivered as required for use, without increasing the net cost to the railroad on the basis of special release orders issued by the purchasing agent. In many cases, this arrangement will be found to work out more satisfactorily than the usual blanket order system.

Definite specifications or commercial standards permit wider competition with consequent price reductions and provide for all bids to be submitted on the same basis. The ideal condition would be for all railroads to adopt the same specifications or commercial standards.

Facilities for Handling Materials

S. A. Hayden, Chairman*

The recent recommendation of the Division that all delivery of material to the point of use be organized and operated by the stores department makes it more important than ever that adequate roadways of the best type be provided over which to operate trucks, tractors, etc. The committee concurs in recommendations of previous committees in that the primary system or main arteries should be constructed of concrete. Secondary roads can be more economically constructed of asphaltic or other types of pavement.

Sheltered or undercover storage is desirable for all materials where available and practicable. A canvass of railways reveals that this is being provided to a much greater extent than heretofore by utilizing facilities abandoned by other departments where they are advantageously located and, further, because reduced stocks in recent years has made additional space in storerooms available.

Material particularly subject to breakage, such as glassware, should be kept in original containers where the quantity to be stored is sufficient to justify the practice. Expensive materials, easily broken or damaged in transit, such as passenger-car batteries, air-brake devices, gages, etc., may well be shipped in especially-designed containers to minimize the opportunity of damage while in transit. With heavy reductions in forces at outside points, there has been an increasing tendency to concentrate repair work at principal shop points, involving the transportation of large quantities of such materials to and from the repair shop.

Finished Materials

Materials with finished surfaces or threaded portions should be protected from physical damage and from the elements. A canvass of the various lines reveals a wide diversity in this work. Application of oils, greases, special rust preventive materials and paints, wrapping with burlap or adhesive tape, and use of special containers are some of the practices in use. Flues and tubes can be obtained from the manufacturer oiled or covered with a paraffine solution at no additional cost.

The committee has assembled data on material-handling facilities, including a cement-sack cleaning machine; a rack for sacking loose track salt; a cable spool rack constructed of scrap rail for handling spools of heavy steel cable; a rack for the storage of locomotive valve and cylinder rings, constructed of scrap pipe; a wheel hook for handling one pair of mounted wheels with a locomotive crane; lumber carrier for handling lumber for freight-car repair work; a grapple hook for handling heavy sheet steel; a special shear for cutting locomotive tire shims; a rack for storing locomotive boiler tubes; a fire barrel paint rack and vat, for preparing fire barrels from old containers; and skids for storing and handling rivets, sheet asbestos, tire shims, tank hose, coach springs, tin and welded ware, glass in original boxes, locomotive tires in small quantities, journal boxes and steel or electric cable on large reels; also especially-designed shipping containers for passenger-car batteries; signal valves; governors; straight-air vent valves; steam-heat valves; feed valves; strainer checks; steam valve bodies; brake valves; steam-heat regulators; air gages; universal valves; steam gages; and car testing devices.

*General Storekeeper, Missouri-Kansas-Texas.

Material Guarantees

C. D. Baldwin, Chairman*

Material guarantees are of two kinds, expressed and implied. In most cases, the purchaser is compelled to rely on the honesty of the seller to supply merchandise reasonably suitable for the intended purposes and actually worth the price paid. Obviously, a buyer cannot rightfully expect a seller to make an express or implied guarantee of his goods if he is not clearly informed of the uses intended to be made of the merchandise. If the purchaser describes the kind of work to be done or the result he desires to accomplish, and the manufacturer or dealer professes to be able to supply goods which will do the work and the buyer is thereby induced to give him an order therefor, then there is an implied warranty that the thing so furnished is reasonably adapted to the work for which it is procured.

It is not possible under all circumstances for a purchaser to notify a seller promptly that merchandise is not satisfactory, since in many instances it is not practicable to determine the quality of goods by their appearance. However, material should be inspected promptly when received, although it may pass inspection when received and later develop a flaw or defect when being machined or while in actual service. As soon as any defect is shown, it should be called to the attention of the seller and a claim made for replacement or reimbursement for the loss the buyer has sustained.

It is not always customary to ask for guarantees, either under contract or for commodities furnished on regular orders. It is, however, good policy to have as one of the conditions on the printed order blank the clause that the seller agrees to save harmless and indemnify the railroad against any and all claims by reason of alleged infringements of patents and expenses of any kind in connection therewith arising from the purchase and use of material covered thereby. Another condition might read that the seller agrees to replace any and all material which the railroad finds to be defective in workmanship or quality, or which is not in accordance with specifications and order, and agrees to pay all transportation charges on such rejected or incorrect material, such material to be held by the railroad pending the seller's disposition at the seller's risk.

The experience of a large number of railroads is that, almost without exception, it has been found that concerns from whom they order material are willing to stand back of their products and make replacement in the event material is rejected, after having been in service only a short time, on account of inferior quality or workmanship.

Failures

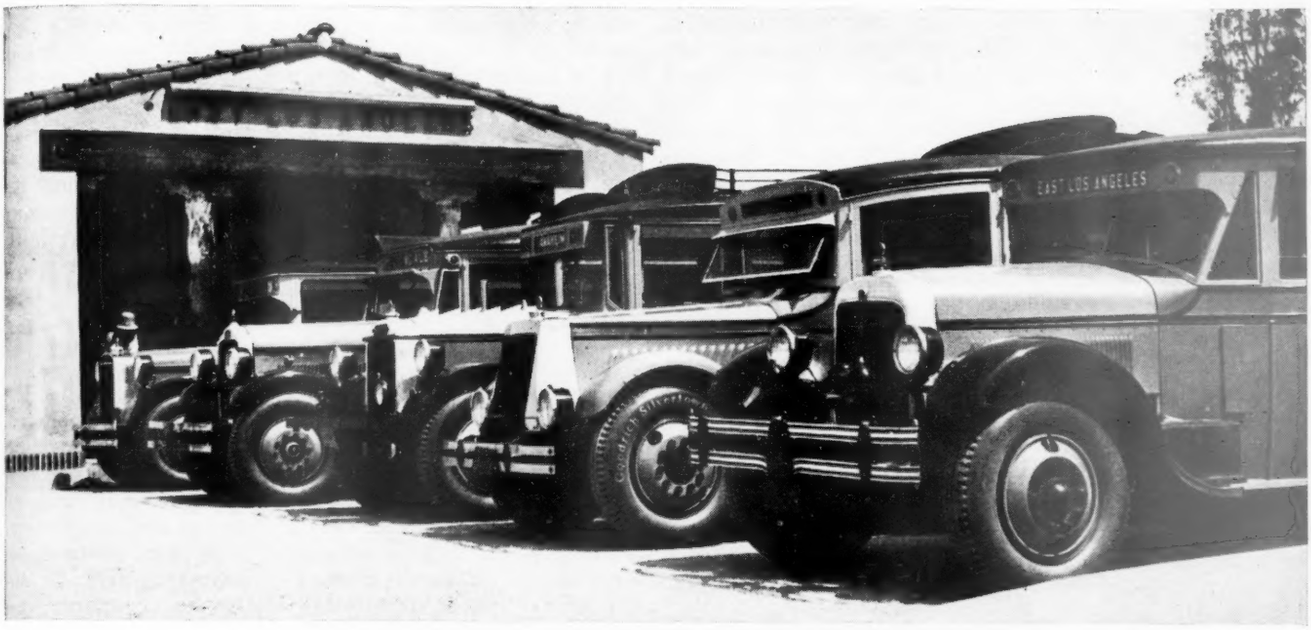
The usual method of handling claims for failures or rejections is for the using department to report through the general storekeeper, clearly advising in detail wherein the material proved to be defective or not in accordance with the specification as ordered, furnshing all necessary information, with the requisition, order number and date of invoice. The general storekeeper reports to the general purchasing agent who will invite joint inspection, inquiring whether or not and when the shipper will replace it in accordance with specification to which it was purchased. The stores or using department should be fully informed by the purchasing department when service life is guaranteed by the manufacturer. Usually, where material is pur-

(*Continued on page 133*)

* Purchasing Agent, Bangor & Aroostook.

Motor Transport Section

Passenger Motor Transport Series — Article No. 3



Plenty of Parking Space is Provided at the U. P. Station at East Los Angeles

Train-Connection Coaches Solve Terminal Problem

Union Pacific utilizes buses for gathering and distributing passengers in Los Angeles area

FACED with the problem of serving the rapidly-growing but scattered metropolitan and suburban districts of Los Angeles county from a through passenger standpoint, the Union Pacific has turned to the motor bus for solution. The beginnings of the motor-coach train-connection operation were made in May, 1929, and the results of the initial operations were so gratifying that the train connection service has been expanded considerably in the ensuing six years. This expansion has not only resulted in materially reduced expenses, taking all factors into consideration, but it has also been the means of keeping many passengers on the rails. The practical "store-door" pick-up and delivery of passengers has added flexibility and convenience to the other advantages of rail service.

The distribution and collection of passengers from and to outlying points is handled at a station known as East Los Angeles, 6.5 miles east of the downtown station of the Union Pacific in the city of Los Angeles proper. The site for this station was selected after consideration of all the factors involved. Situated in a relatively sparsely settled district, there was ample room for spacious station grounds, which have been landscaped and abound with shrubs and flowers. Plenty of ground was available for parking space, not only for the train-connection coaches but also for the large number of private automobiles, which bring passengers to this station in preference to the Central station with its heavy street traffic in downtown Los Angeles. There has also developed a considerable movement to the station of passengers in private automobiles whose baggage is brought by bus. The station is located immediately adjacent to Atlantic boulevard, an arterial highway, which, either directly or via readily accessible diverging boulevards, provides rapid and convenient access to all of the outlying points served by the train-connection coaches.

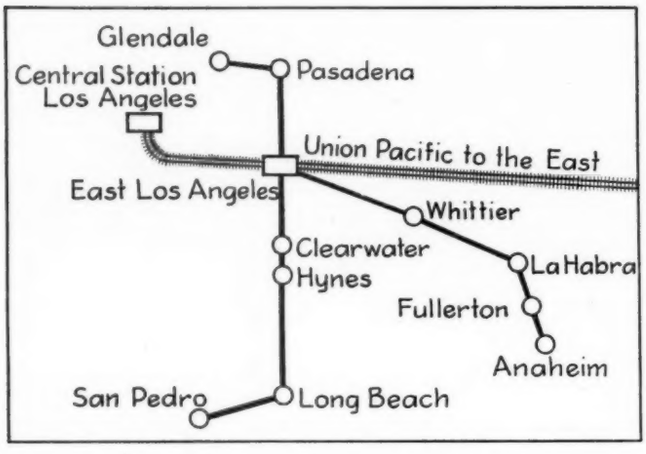
The station was opened for business on May 15, 1929, when the first of the train-connection runs were in-

augurated. It is of typical California architecture, and is provided with a parking bay on the east side for the handling of heavy baggage and express, and a similar bay on the west side for transferring passengers. Connecting buses meet all trains, and four buses may be loaded at the same time in this bay.

General Operations

The train-connection coaches serve Glendale, Pasadena, San Pedro, Long Beach, Anaheim, Fullerton, La Habra, Whittier and intermediate points on regularly scheduled runs, as shown on the accompanying map. Westbound passengers holding rail tickets to these points leave the train at the East Los Angeles station and board the coaches for transportation direct to destination. Similarly, the coaches pick up eastbound passengers at the various outlying points and bring them to the East Los Angeles station to board the trains. In either case, the passengers' baggage requires no handling on their part at the station.

The coaches operate on regularly scheduled routes, with certain designated stops, although additional stops are made at any point along the regular routes, providing, in effect, a doorstep service.



The Train Connection Routes at East Los Angeles

Service Comparisons

Among the first of the runs to be inaugurated was that to Pasadena. Previously, two trains each way were operated daily, one carrying a Pasadena sleeping car. This coach service was extended to Glendale, via Pasadena; Glendale passengers having previously been handled to the downtown station in Los Angeles by rail, and thence to Glendale by taxicab at the railway's expense. Formerly, both a city and a station ticket office were maintained by the Union Pacific in Pasadena. Since the inauguration of the train connection service, this duplication was found unnecessary and the offices are consolidated at the station, which is located on Pasadena's main street, only a few blocks from the principal business section. This station has become an off-line station with the inauguration of the train connection service. Two buses are operated in each direction daily between East Los Angeles and Glendale, the run of 19.5 miles to Glendale requiring about 50 min., and to Pasadena a half hour.

Some time later, service was begun to Whittier, La Habra, Fullerton and Anaheim. This service, consisting of two coaches in each direction daily, replaced a rail motor car service which had heretofore been operated on a shuttle basis on the Anaheim branch. The coaches require approximately an hour for the 24.5 mile run between East Los Angeles and Anaheim. In addition to providing local service between these points, this route affords opportunity for transfer of passengers destined to or from San Diego. Normally, passengers arriving on the Union Pacific destined for points between Los Angeles and San Diego on the Santa Fe are handled to the downtown station and thence transferred. If the trains should be late, however, passengers may make the connection without difficulty by using the train-connection service between East Los Angeles and Fullerton on the Anaheim branch, boarding Santa Fe trains there.

The Long Beach-San Pedro service was the last to

The Transfer from Train to Bus Involves No Difficulties for the Passengers

be inaugurated. Previously, three trains were operated in each direction daily, including one train with a Long Beach-San Pedro sleeping car. Two coaches in each direction daily now handle this service, averaging 80 min. for the 33-mile run between East Los Angeles and San Pedro via Long Beach. On this run, checked baggage and express normally runs so heavy that a truck is used for handling it.

The service is not available for local use, being intended only for passengers and friends desirous of meeting them or seeing them off, although it is also used to some extent for picking up through bus passengers for the Interstate Transit Lines, the Union Pacific's bus-operating subsidiary. Through bus passengers are handled on the regularly scheduled runs to points connecting with the Interstate's bus route. In some cases, what would otherwise be a deadhead movement of train-connection buses is also utilized for picking up through bus passengers.

Equipment

The units used in the Pasadena-Glendale service consist of one Fageol and two G. M. C. coaches of the passenger-baggage type; one G. M. C., one White and one A. C. & F. coach protect the Long Beach-San Pedro service, together with a G. M. C., van-type, 3½-ton truck for the heavy baggage and express. The Anaheim run is protected by one Mack and one Fageol bus. A Cadillac sedan is available in emergencies, and there is also a stand-by White truck for relief and to protect the Pasadena-Glendale run when the baggage is unusually heavy. These units, together with a Ford passenger car for company service, constitute the equipment in the train-connection service.

When the arrangement was started, it was operated under the name of Union Pacific Stages, under the jurisdiction of a superintendent reporting to the general manager of the railroad at Los Angeles. On May 18, 1933, however, general supervision of the operations was turned over to the Interstate Transit Lines, with an assistant superintendent of the U. P. Stages in direct charge. The U. P. Stages maintain a separate garage for servicing their own equipment, as well as the automotive equipment of the railroad. This garage is situated adjacent to the East Los Angeles shops of the railroad and services, in all, 25 motor units and 40 trailers, including passenger autos in railway company service and engineering and stores department trucks.

N.W.P.-Pacific Greyhound Co-ordination

UNDER authority granted by the Railroad Commission of California, the Northwestern Pacific and the Pacific Greyhound Lines, on June 12, pooled their passenger service in the territory between San Francisco, Cal., and Ukiah (except in the interurban area), and in the Sonoma Valley. Under this arrangement, tickets of either company will be accepted by the other so that passengers may choose their mode of transportation.

Effective with this arrangement, the Northwestern Pacific timetable carries but four main line passenger trains, namely, between San Francisco and Eureka, and passenger train service on the Sonoma Valley line was discontinued. The 1934 summer timetable scheduled an additional main line train between San Francisco and Ukiah in each direction, and two daily trains and an additional Sunday train in each direction on the Sonoma Valley branch. The Greyhound's increased service includes four buses in each direction daily between San Francisco and Ukiah, with an additional trip in each direction Sundays; also, seven trips daily in each direction between San Francisco and Santa Rosa, with an additional northward trip Saturdays and southward Sundays. The co-ordinated service offers transportation by train or bus between San Francisco and points as far north as Santa Rosa at not greater than hourly intervals between 6 a.m. and 6 p.m. The Greyhound buses are being operated between the Sonoma Valley and Santa Rosa on a daily schedule of three in each direction, in addition to which there are three buses daily in each direction between Sonoma Valley points and San Francisco, with additional service Saturdays and Sundays.

Railroads and Trucks in Germany

By Dr. Georg Hein*

THE commercial use of motor vehicles for the transportation of freight caused the German government to place them under regulation as early as 1919. A law regarding motor vehicle lines was passed on January 24, 1919, under which a regular and scheduled traffic was to be developed. This regulation was also designed to stop any new and uneconomical lines, thereby protecting all necessary and efficient lines by giving them a concession which would keep all other competitive lines out of business.

The deciding issue of this regulation, which permitted the state traffic administration to enforce a uniform traffic policy on motor vehicle owners, reads as follows:

> A concession may be granted only if safety and efficiency of the service can be guaranteed; and if the enterprise in question is to be managed and directed in accordance with the public interest.

All the countries of the world are facing the same problem, to find a solution as to the best way of combining the railroads with motor vehicle service. An ideal solution, satisfactory to both the motor vehicle companies and the railways, does not exist and cannot be found without injuring one or the other. Therefore, the only aim of every state's traffic policy should be to bring about an understanding and a legalization regarding future development of motor vehicle transportation, in this way obtaining an even distribution between motor vehicles and railroads. German legislation was gradually molded to conform to these changes in the motor vehicle traffic, and new and correct regulations are in preparation.

In Germany, a large number of small motor transportation enterprises have been established which took over the service and expanded it over greater distances, on freight which had till then been carried on the railroads. The principal inducement for industry to entrust its freight to these transporters was not so much the peculiar advantage of a faster and more individual traffic service as it was the lower rates as compared to the railroad transportation. These rate advantages did not exist because the motor transport could ship goods cheaper than the railroads, but rather because the railroads were forced by reasons of general public economy to handle freight, for which motor trucks are best suited, at a rate far above their transport cost in order to ship

* Councillor, German Transportation Ministry.

vital basic commodities at rates below their transport cost.

There were two ways to eliminate this unfairness: To free the railroads from their present rate restrictions, i.e., unregulated competition in the whole freight industry; or by protection of the tariff system now employed by the railroads, i.e., introduction of the same or a similar tariff system for motor vehicles. Germany took the latter path in an emergency measure which was passed on October 6, 1931. The following legal steps for the regulation of competition between freight motor vehicles and the railroads were undertaken:

(a) Introduction of compulsory concession for any transport of goods for compensation, applicable for more than 30 miles.
(b) Establishment of transport rates regarding motor vehicle freight traffic, which approximates the three highest freight tariff groups of the German railroads.

This regulation does not apply to company service transportation, i.e., transportation of goods for the companies' own use, regardless of the distance involved. Furthermore, it does not apply to freight traffic within a zone of 30 miles. Within this limited zone, freight transportation by motor vehicle is unregulated, since it is believed that motor vehicle service within a city or between nearby cities is more valuable to the general economic system than rail transportation.

In practice, however, it has been found impossible to control the rates on long-distance freight traffic. Two ways of overcoming these conditions are under discussion, namely:

(a) Legal union of all concessioned contractors of long-distance freight traffic into a motor vehicle trucking union, contractors to keep their absolute independence.
(b) Legal union of contractors as under (a), but employment of union members to take place through the German railroads by freight assignments to trucks of traffic formerly handled by railroads.

The German government has not made a decision as yet. However, it is inclined to take the latter path for the following reasons:

(aa) A re-establishment of unlimited rights concerning long-distance freight transportation which would necessarily result in another competitive dispute between railroads and motor vehicles must not take place. The regulation regarding the competition of both freight carriers, which was completed by the supplementary measure of 1931, is considered to be absolutely correct.

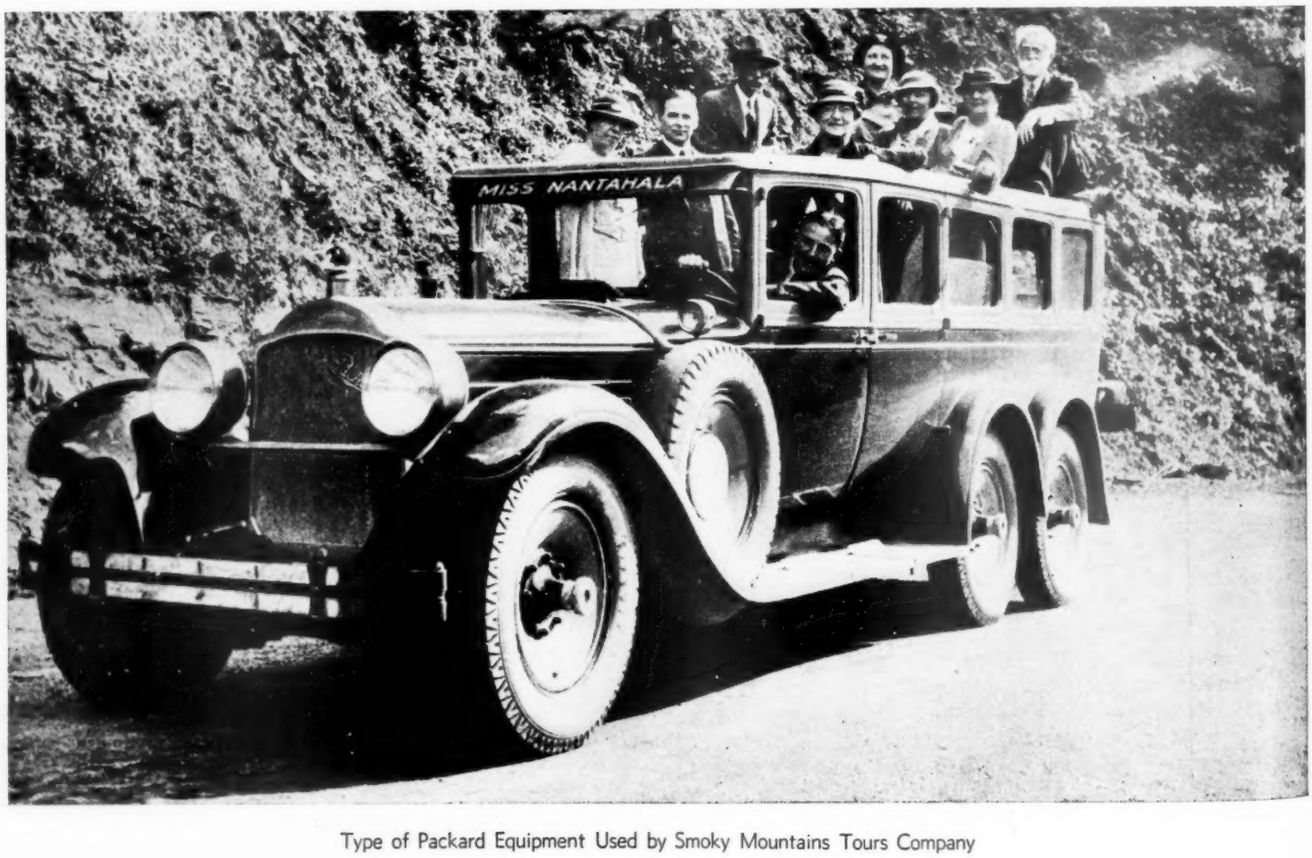
(bb) The unregulated handling of long-distance freight traffic by contractors does not entirely put aside a danger of charging lower rates than the legal tariff demands. The fight of freight carriers for the business will always provoke them to grant senders of goods inadmissible rate advantages.

(cc) Since the German railroads decided to establish their own motor vehicle traffic, the present contractors are in danger of being slowly eliminated from the long distance service. It is, therefore, only natural that they favor the idea of carrying out a motor vehicle traffic for the railroads, especially since the railroads gave them a prospect of several years' employment and are willing to guarantee them a certain quota of the traffic per annum, which gives them the possibility of a secured existence.

Southern Co-operates in Great Smoky Tours

CO-INCIDENT with the formal opening of Great Smoky Mountains National Park in Tennessee and North Carolina, near Asheville, N. C., the Southern has made arrangements with the Smoky Mountains Tours Company for all-expense tours. This is the only tour east of the Rockies operated on the rail-highway, all-expense basis used in most of the western national parks.

The new national park promises to be extremely popu-



Type of Packard Equipment Used by Smoky Mountains Tours Company

lar, in view of its scenic attractions and its accessibility to the centers of population. Last year nearly 400,000 visitors, more than in any other national park, were registered, even though the park was not officially open.

The tours, which are also sold by the Pennsylvania, New York Central and Baltimore & Ohio, and various travel bureaus, provide for the rail trips to Asheville and return, plus a 318-mile bus trip through the park, affording ample time to view its gorges, waterfalls and mountains, many of which are over 6,000 ft. above sea level.

Highway Equipment Used

The Smoky Mountains Tours Company operates specially constructed Packard and Cadillac sight-seeing cars in this service, including four 15-passenger semi-trailer Packard sight-seeing cars with roll tops, one 12-passenger and two 7-passenger roll-top Packards, 2 open Packard touring cars, 5 regular 7-passenger Packard sedans, and 3 Cadillac 7-passenger sedans. The specially constructed equipment, with a total capacity of from 90 to 100 passengers is used for regular service, and the sedans are used in stand-by service to take care of unusually large parties.

Nantahala Gorge in the Great Smokies

Part of the tour will be operated over the newly-constructed Skyline drive, which extends along the Tennessee-North Carolina state line at an elevation of over 5,000 ft. above sea level for a distance of 7.3 miles, and which was built at a cost of $100,000 per mile.

The Smoky Mountains Tours Company has been operating sightseeing service in the vicinity of Asheville for some years, and by careful selection and training of its drivers, it has built up the enviable record of never having injured a passenger.

The tours this year have shown a marked increase in patronage over previous years and are becoming especially popular for special-party itineraries.

Railway Supply Officers Hold Convention

(*Continued from page 128*)

chased to specifications, it is only necessary to advise the manufacturer or seller wherein his material did not meet the requirements and request that replacement be made. Many failures are not reported, but, if a proper system were installed for following through such cases, replacement could be easily obtained.

Elect Tobey and Clifford

The election of new officers resulted in the selection of C. B. Tobey, general storekeeper, Lehigh Valley, for chairman; E. A. Clifford, general purchasing agent, Chicago & North Western, as vice-chairman; and the following as members of the General Committee: E. H. Lamneck, purchasing agent, Pennsylvania; C. H. Murrin, general storekeeper, Louisville & Nashville; W. G. Black, vice-president, Chesapeake & Ohio; E. Harty, assistant general storekeeper, Southern Pacific, Pacific System; and G. E. Scott, retiring chairman. The following were re-elected to the General Committee: J. C. Kirk, assistant general storekeeper, Chicago, Rock Island, & Pacific; A. L. Sorensen, manager of stores, Erie; and L. B. Wood, general storekeeper, Southern Pacific, Texas & Louisiana Lines.

A Communication . . .

Most Railroad Employees Imbued with "Will to Please"

To the Editor:

The letter signed "A Reader" in your issue of June 8, recounting the indifference of various railroad employees in failing to aid him to change trains, and to carry his baggage, is deplorable, yet it is not wholly indicative of *all* employees' attitudes.

For example (and, after all, *good* work such as this should be recounted as well as the criticisms): An old lady stepped from a Pullman car at Garrett, Ind., recently. The trainman who was coming forward, took her arm, helped her toward a switch shanty, stepped into that shack, procured a chair, brought it out and seated her in it. A few moments later, when her friends drove up in a car for her, he went to her, helped her to rise, took her baggage in one hand and aided her with his other to the car, stored the baggage in it, then put the chair back in the shanty and returned to his train. He had no idea that his actions were being observed. It was merely an evidence of "The Will to Please." I think these kindly acts by railroad men far outnumber those of poor service, even though the latter admittedly, occur frequently.

Franklin Snow

Week-end jaunts, all-expense trips into the Wisconsin Dells country, inaugurated by the Chicago & North Western last summer were so successful that they are being conducted again this summer. The tours, which combine rail travel with a motor trip, will be started from Chicago every Saturday until August 31. On arrival at Madison, Wis., the party is carried by motor bus through Little Norway, Tower State Park, Taliesen, Ableman's Narrows, and Devil's Lake State Park to Chula Vista, a resort where the party spends the night. Sunday is devoted to a full inspection of the Wisconsin Dells by foot and by boat. On Sunday afternoon, the party is motored back through Portage to Madison, where a train is boarded for the return trip to Chicago.

Odds and Ends . . .

Most Northerly Bridge

What is claimed to be the world's most northerly bridge is the cantilever railway bridge spanning Dead Horse gulch, on the White Pass & Yukon.

Pastor-Hoghead

Rev. H. H. Higgins is not only an engineman for the Illinois Central at Matoon, Ill., but also an outstanding revivalist as an ordained minister in the Methodist Episcopal Church South.

Railroading Twins

A set of twins, 78 years old, was broken up recently when Edwin Mattison of Linwood, Neb., died. Edwin and his twin brother, Edgar, worked as section foreman and section laborer, respectively, for the Chicago & North Western for many years before both retired on April 1, 1927.

A Tribute

William Harridge, president of the American League, had this to say regarding railroads in a recent issue of Liberty: "We have been fortunate in our use of railroads. No once, to the best of my memory, has a ballplayer been hurt in a railroad accident. Moreover, we have never missed a scheduled game because of a railroad delay, and very often trains will be held 15 and 20 min. for us. We would be foolish, therefore—to say nothing of being ungrateful—if we were to switch."

Hot Water Bottles for First-Class Only

Air conditioning is not the only novelty among the numerous conveniences afforded for railroad passengers in the present scientific era; hot water bottles for passengers in sleeping cars are the latest. These are now offered by the London, Midland & Scottish. By a recent announcement it appears that these comfort conservers are available to all first-class sleeping car passengers, old or young, male or female, in all the principal nightly expresses; London to Liverpool, Manchester, Holyhead, Newcastle, Glasgow, Aberdeen and numerous other places.

A Use for Everything

Bullet-proof trains are constructed in Central America by putting old telephone directories between the two sheets of steel which ordinarily form the car sides. Although the cars were built of double steel plates, these had been penetrated by the high-powered bullets fired by bandits who frequently attack the trains. Someone discovered that when telephone books were placed between the plates, the bullets did not come through. Thereupon, an order was placed for 4,000 lb. of old New York telephone books.

Real Solicitation

Ernest Eidson, section laborer for the St. Louis-San Francisco at Jones, Okla., was asked for a drink of water by four tramps who had just dismounted from a Frisco freight train. Ernest gave them not only the drink of water, but also a lecture on the dangers of riding the rods and the safety and pleasure of riding passenger trains on the cushions. So well did Ernest present the case that the hoboes entered the station and bought four tickets from Jones to Oklahoma City.

Boundary Crossers

Train and engine crews on the San Diego & Arizona cross the international boundary between the United States and Mexico eight times a day during the course of their regular runs. They operate on a turn-around basis, and, between El Centro, Cal., and San Diego, the line dips down into Mexico twice, making four border crossings each trip, or eight for the turn-around. A somewhat similar situation exists on the United States-Canadian border. On the run between Duluth and Winnipeg, on the D. & W. P.-Canadian National, trains leave the United States, run in Canada for several miles, return into U. S. territory, and then, finally, re-enter Canada. On this line, however, the crews do not make the turn-around run.

Heaviest Single-Car Shipment?

What is believed to be the heaviest single-car shipment ever made left the Schenectady Works of the General Electric Company on March 21 for its destination at the Potomac Electric Light & Power Company plant at Benning, D. C. The load consisted of a generator shaft, rotor, and poles for a 25,000-kw. frequency converter set, with a total weight of 367,000 lb. The converter will be used to deliver 25-cycle single-phase power to the Pennsylvania. The routing of this extraordinary load required the use of tracks of the Delaware & Hudson, the Pennsylvania and the Western Maryland, clearances over the regular route between Schenectady and Benning being limited by the dimensions of the tunnels in the city of Baltimore, Md.

Patent No. 2,000,000

The two-millionth patent granted by the United States Patent Office since the beginning of the present series in 1836 was issued recently to Joseph Ledwinka, chief engineer of the Edward G. Budd Manufacturing Company, Philadelphia, Pa., to which company the patent is assigned. The patent, issued on an improvement for pneumatic tires for railroad cars, is not only the two-millionth granted by the patent office but the two hundred and forty-eighth award to Mr. Ledwinka, whose work during the last 36 years has had a marked influence upon the development of the modern automobile and streamlined train. He received his first patent in 1899 on a "means of propulsion of vehicles by electricity." It was No. 638,643.

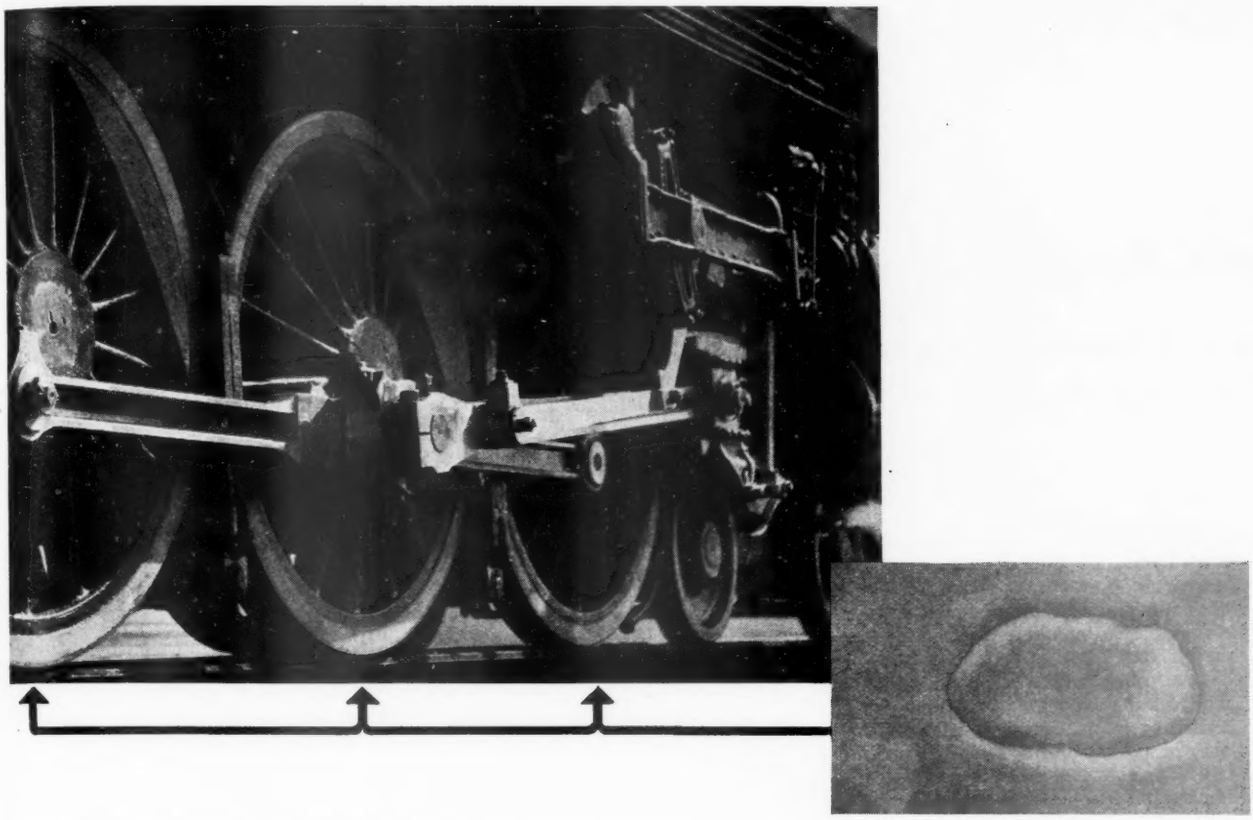
Quick Answers

On a division message line of the Norfolk & Western, there are many telephone call signals. It is sometimes difficult to assign a distinctly different call to each station. On this particular line, A was given one short ring for his call; B, two short rings; C, three short rings; D, four short rings; and E, five short rings. Their acknowledgment of a call is always one short ring. Not long ago the caller called A—one short ring. A answered immediately, which made two short rings. B thought it was his ring. He also answered immediately. C heard three short rings and thought it was his call. He answered very quickly. D heard four short rings—his ring—and answered very, very quickly. E heard the five short rings and answered very, very, very quickly. Fortunately, that was the end of the short rings—no one on the division had six or more short rings for a call. Otherwise, it might have taken a column to tell this story and A may never have gotten the message intended for him.

More Expert Shots Needed

Not long ago, we described in these columns the need of an expert rifleman in railway service for shooting down a corroded smokestack. Now it appears that railways need expert artillerymen as well. At least, the Bernina Railway in Switzerland used some recently. A huge glacier forms above the line every year at a place called Bernine Hauser, and, towards spring, it always falls on the right-of-way at unexpected times, frequently causing damage. Last spring it crashed on the line and killed two section laborers, missing a train by a matter of a few feet. This year, the railway authorities determined to dislodge it at a time when it could do the least damage. It being a well-known fact that avalanches may be started at times by even a loud yell, the railway procured an army mine-thrower. After a few shots, down came the avalanche, burying the line in six feet of snow for a quarter of a mile. This was soon cleared away, however, and there is now no further danger of an unexpected drop. The experiment was so successful that the same methods are being used in bringing down avalanches at other danger points along the line.

News Department begins on next left-hand page



Power Point area between Driver and Rail 0.24 sq. inches.

EXAMINE THESE POINTS, IT WILL *Pay you!*

HOW MUCH POWER ARE YOU APPLYING TO THEM?

The answer will tell you whether you are getting the greatest use out of your railroad. Modern locomotives apply 1200 horse power per pair of "power points."

The more power you apply at these "power points" the more drawbar horse power you get. The more drawbar horse power the more gross ton-miles per train hour.

NOTE: Only 2½% of present road locomotives come anywhere near giving this power output per pair of "power points."

97½% are in the class giving from 500 to 800 horse power per pair of "power points."

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

NEWS

House Committee Reports Eastman Bus-Truck Bill

Accepts sub-committee report proposing but few changes in measure as passed by Senate

A favorable report on the Eastman bill for the regulation of interstate bus and truck transportation by the Interstate Commerce Commission was ordered by the House committee on interstate and foreign commerce on July 23 when the committee accepted, by a nearly unanimous vote, with slight changes, the report of a sub-committee headed by Representative Pettengill, of Indiana, proposing only a few changes in the bill S. 1629 which had been passed by the Senate. The committee expected to obtain from the rules committee rules providing for the consideration and probable passage next week of both this bill and the Pettengill bill to eliminate the long-and-short-haul clause from the fourth section of the interstate commerce act, which was reported on July 22.

With this action of the committee there will be placed on the congressional calendars ready for action on the floor of the House or the Senate the most important parts of the Eastman regulatory program recommended in his reports to the President and Congress, although none of the bills has been finally passed as yet. The bus-truck bill has been passed by the Senate and is now expected to be passed by the House. The waterway bill is awaiting its turn in the Senate, and the House rules committee has reported a rule providing for early consideration of the bill to amend the bankruptcy law in relation to railroad reorganizations. The bill for the reorganization of the Interstate Commerce Commission and the creation of a permanent co-ordinator of transportation is still in committee, but would probably be reported out by the Senate committee if the waterway bill were passed.

The important change from the bill as passed by the Senate is a specific exemption of intrastate rates, regardless of the Shreveport doctrine, adopted at the request of the state commissioners, whose organization is now in favor of the bill. Another exemption was added as to trucks engaged exclusively in the hauling of livestock and unprocessed agricultural products and newspapers. There was also a further amendment to the "grandfather" clause, extending it to June 1, 1935, so that operators in business before that date will be entitled to certificates or permits. The changes in the bill were worked out by the sub-committee in conference with Co-ordinator Eastman.

The sub-committee said in its report that the bulk of the amendments offered to it were basic changes that would defeat the entire regulation of motor carriers and that those adopted "tend only to strengthen the legislation for public interest and will stabilize the interstate motor carrier industry so that all forms of carriers may be co-ordinated in serving the Nation's requirements in their proper fields." It was also stated that "the employees of this industry will be protected by regulating labor hours, thereby making the highways more safe for the citizen and his private car."

Traveling Passenger Agents

The Association of Traveling Passenger Agents will hold its next meeting in Denver, Col., on October 7, 8 and 9.

Associated Traffic Clubs Meeting

The fourteenth annual convention of the Associated Traffic Clubs of America will be held in Indianapolis, Ind., on October 15-16.

Northwest Shippers' Board

The Northwest Shippers' Advisory Board will hold its forty-sixth meeting at Duluth, Minn., on July 30. The speakers will include Neal E. Williams, Donald D. Conn and M. J. Gormley, executive assistant of the Association of American Railroads.

Crossing Accidents in April

The railroads of the country report for the month of April a total of 158 persons killed at highway crossings, as compared with 115 in 1934; and injured, 325, as compared with 266; and the total for four months ending with April of this year is 522 killed and 1,587 injured.

Bill to Extend Joint Rates to River Carriers

The House committee on interstate and foreign commerce has favorably reported a bill previously passed by the Senate, S. 1994, to amend the Inland Waterways Corporation act to authorize water carriers on the Sacramento and San Joaquin rivers to apply to the Interstate Commerce Commission for certificates of public convenience and necessity and for the establishment of joint rates between such water carriers and connecting rail carriers. The House committee, however, proposed an amendment to the bill to include also the Savannah river. The law now covers the Warrior, Mississippi, Columbia and Snake rivers and their tributaries.

Important Fourth Section Relief Denied by I. C. C.

Rejects two general applications but grants others in series of recent decisions

The Interstate Commerce Commission has made public in the last few days a series of decisions on applications filed by the railroads for relief from the fourth section of the interstate commerce act, to aid them in meeting unregulated competition, denying two important general applications but granting the relief sought, at least in part, in several other cases. The report denying relief as to passenger automobiles was reported in last week's issue. In a later report, three commissioners dissenting, the commission has denied the application of carriers in official classification territory for authority to establish between points in that territory rates on merchandise in shipping containers and in mixed carloads and other rates to meet truck or water competition, without observing the aggregate-of-intermediates provision of Section 4. It was the purpose of the applicants to publish in connection with the proposed rates a provision that they were issued to meet water or truck competition and to apply only from or to the points named but not to be used as factors in the construction of combination rates. The majority said in part:

"On merchandise in mixed carloads third-class rates are generally proposed, although in numerous instances the rates on such traffic will be lower where required to meet the competition of water carriers or motor trucks.

"The authority sought would cover any rates which the carriers may desire to publish as specific commodity rates or in the form of exceptions to the official classification when they consider such rates necessary to meet the competition of water carriers or motor trucks. The application contains illustrations of the through rates which applicants desire to continue in excess of the aggregate of the intermediate rates. Typical of these is the through rate of $1.52 per 100 lb. from Chicago, Ill., to New York, N. Y., applicable on articles rated first class in the official classification loaded in containers with a minimum weight of 4,000 lb. Among the routes over which this rate applies is that of the New York Central Railroad through Gardenville, N. Y. This rate would exceed a combination of rates to and from Buffalo, N. Y., on shipments taking first-class rates when moving in container service. The rate from

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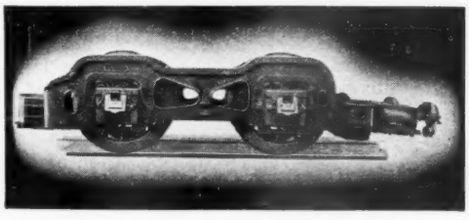
THE LOCOMOTIVE BOOSTER *Reduces* LOCOMOTIVE MAINTENANCE COSTS



In analyzing locomotive maintenance costs, many factors must be considered to make an accurate comparison.

But the fundamental factor, wear on moving parts, is proportional to the stresses involved.

These stresses, and corresponding wear, are reduced when the main cylinders provide the power needed for road speeds and the added power of The Locomotive Booster is used for starting, accelerating and over the hard spots.

By using The Locomotive Booster you can build better and cheaper instead of just bigger to gain power for a small part of the run—perhaps only 5% of the total.

Capitalize idle weight and spare steam with The Locomotive Booster and avoid needless operating fuel and maintenance expense.

Franklin parts fit—in applying them there is no labor cost for fitting. They are built to original dimensions of carefully selected materials—they avoid road failures and excessive maintenance.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

Chicago to Buffalo is $1.10 and from Buffalo to New York 40 cents, a total of $1.50, 2 cents less than the through rate.

"The application was opposed by the National Code Authority for the Trucking Industry, various associations of manufacturers of, dealers in, and operators of motor trucks, and individual companies and corporations engaged in the trucking business. Under the Code Authority efforts are being made to stabilize trucking charges, and these interests fear that continued reductions in rail rates to meet truck competition will lead to further unsettlement of the situation and interference with the work of stabilization. They contend that such reductions are not necessary to meet truck competition, and will result in a waste of the rail carriers' revenues.

"As a result of these competing forces applicant carriers have been compelled to make reductions in their rates and in all probability will be compelled to make other further reductions from time to time in order to meet such competition. The system of rates proposed in this application and the special transportation services for which they are to apply are a part of the program adopted by rail carriers in official territory in their efforts to check the increasing loss of traffic to competing and unregulated transportation agencies, especially the motor truck, which enjoy a freedom from regulation that gives them a substantial advantage over the rail lines.

"The prohibition of Section 4 against the charging of a greater compensation as a through rate than the aggregate of the intermediate rates is absolute, except in cases which, upon application by the carriers and investigation by us, disclose special situations justifying relief from the provisions of law. In our administration of the fourth section in connection with competitive adjustments we have rigidly safeguarded two general principles. They have been usually stated in connection with applications for relief from the long-and-short-haul clause, but they are equally applicable here. First, the competition relied on to differentiate the through traffic from that from or to the intermediate point must exist as to the one and not as to the other, or in different degrees, and must be compelling and beyond the control of the rail carrier to avoid. Secondly, the rate adjustment proposed must be appropriate to meet the competitive situation which exists, and the competitive rate must not be lower than necessary to meet the competition. Truck competition does not justify departures from the aggregate-of-intermediates provision to establish reduced rates at an intermediate point, if the through traffic is subject to competitive influences to the same extent as is that from or to the intermediate point. All of these considerations involve questions of administrative judgment reposed in us by Congress, when it left to us the determination of the special case justifying relief from the provisions of Section 4. We cannot avoid that responsibility but must continue to examine the situations brought to our attention to the end that these principles be given continued vitality.

"The application before us is not directed to any special situation but is general in character and scope and indefinite as to detail. What is said to be true with respect to truck competition in the territory in question undoubtedly applies with but variations of degree to every section of the country. The same arguments could readily be made for universal relief as to truck-competitive rates. Obviously this is not the statement of a special case, but rather is an attempt to convince us that under present truck-competitive conditions the rail carriers should not be required to comply with this provision of law, but should be given by our order a general exemption from the operation of an otherwise mandatory statute. The jurisdiction invoked is legislative, and not administrative. A general case, and not special cases, is before us.

"There is even less reason for granting this general relief sought with respect to rates that may be established to meet water competition. Rates of the water carriers in this territory are more stable than those of the motor trucks. The points at which such competition exists, while important, are comparatively few and well known, and there is no such urgent need for the establishment by rail carriers of emergency and experimental rates to meet such competition as there is in the case of truck competition."

Commissioner Mahaffie, dissenting, said:

"I am unabe to concur in the action of the majority in this case. The prayer of the applicants for relief is based on the existence of a formidable and increasing form of competition which has cut so deeply into their traffic and revenues that it has become necessary for them to adopt such measures as those proposed to protect, in some measure, their interests. We are fully aware of these conditions and have frequently pointed out to the applicants and other carriers subject to our jurisdiction the need of adjusting their rates to meet them.

"The majority, however, in this proceeding deny the applicants the relief from the provisions of Section 4 which is essential in order to make such reductions in the only way in which they can be made, without at the same time reducing rates unaffected by truck competition and thus suffering further and unnecessary losses of revenue. It is stated by the majority that we have no authority to grant relief except in a special case. We have never held, however, that a special case refers only to individual rates or to rates between individual points. The term has a much broader meaning and refers not only to the rates but to the circumstances and conditions which affect the rates, regardless of the number of points between which they may apply.

"In my judgment, such relief would be of advantage to applicants by enabling them to meet motor truck competition in many cases where prompt action is necessary if such competition is to be met and where, unless such action is taken, the traffic will be lost to the rail carriers. Without some such relief as this it seems to me that it will not be possible in many cases for the carriers properly to protect their interests and adjust their rates so as to salvage some of the business which is being diverted to the truck. Since we have ample authority to grant relief in such cases I am of opinion that this is an appropriate case for the exercise of that authority."

Commissioners Meyer and Miller joined in this expression.

In later reports the commission authorized the railroads to establish rates on iron and steel articles, in carloads, in Official Classification territory, on cast iron pipe and fittings, in carloads, within and from and to southern territory, and on iron and steel articles in central and trunk-line territories, without observing the long-and-short-haul provision. Commissioners Lee and McManamy dissented. In another report, Commissioners Lee, McManamy and Porter dissenting, authority was granted on conditions to establish rates on cement, in carloads, from points in the Hudson district of New York, the Lehigh district of Pennsylvania and New Jersey, and other points, to destinations in New England without observing the long-and-short-haul provision. Division 2 of the commission has also issued a report finding that shipments to lower-rated points, through higher-rated points over routes not named in tariffs, because of certain specified operating practices of the carriers, do not result in departures from the long-and-short-haul rule.

Depreciation Rates Prescribed for Additional Railroads

The Interstate Commerce Commission on July 24 made public sub-orders 267 to 331 prescribing depreciation rates on equipment for additional railroads in accordance with the provisions of its order of July 28, 1931.

Drought Rates Extended

Commissioner Aitchison, for the Interstate Commerce Commission, has issued an amendment to its Drought Order No. 20 to authorize the continuance of the reduced rates for the transportation of livestock from points in the drought-stricken areas in Colorado, Kansas, New Mexico, Oklahoma, and Texas from July 20 to September 30.

I. C. C. to Investigate State Rates

The Interstate Commerce Commission, on petition of the railroads concerned, has ordered proceedings of investigation as to the refusal of the Kentucky, Alabama and Tennessee state commissions to authorize the application of temporary emergency surcharges on freight rates similar to those approved by the federal commission in Ex Parte 115 as to certain commodities.

Proposed Express Rate Found Unlawful

Tariff schedules of the Southeastern Express Company proposing to establish all-commodity rates on merchandise in general in carloads from Cincinnati, Ohio, to Atlanta, Ga., and Birmingham, Ala., to meet truck competition for traffic shipped by the Universal Carloading & Distributing Company, were found unlawful by the Interstate Commerce Commission in a report made public on July 24. Carriers in the Southern railway system had appeared in support of the proposal, but it was opposed by the Railway Express Agency, Inc., and the principal railroads of the South ex-

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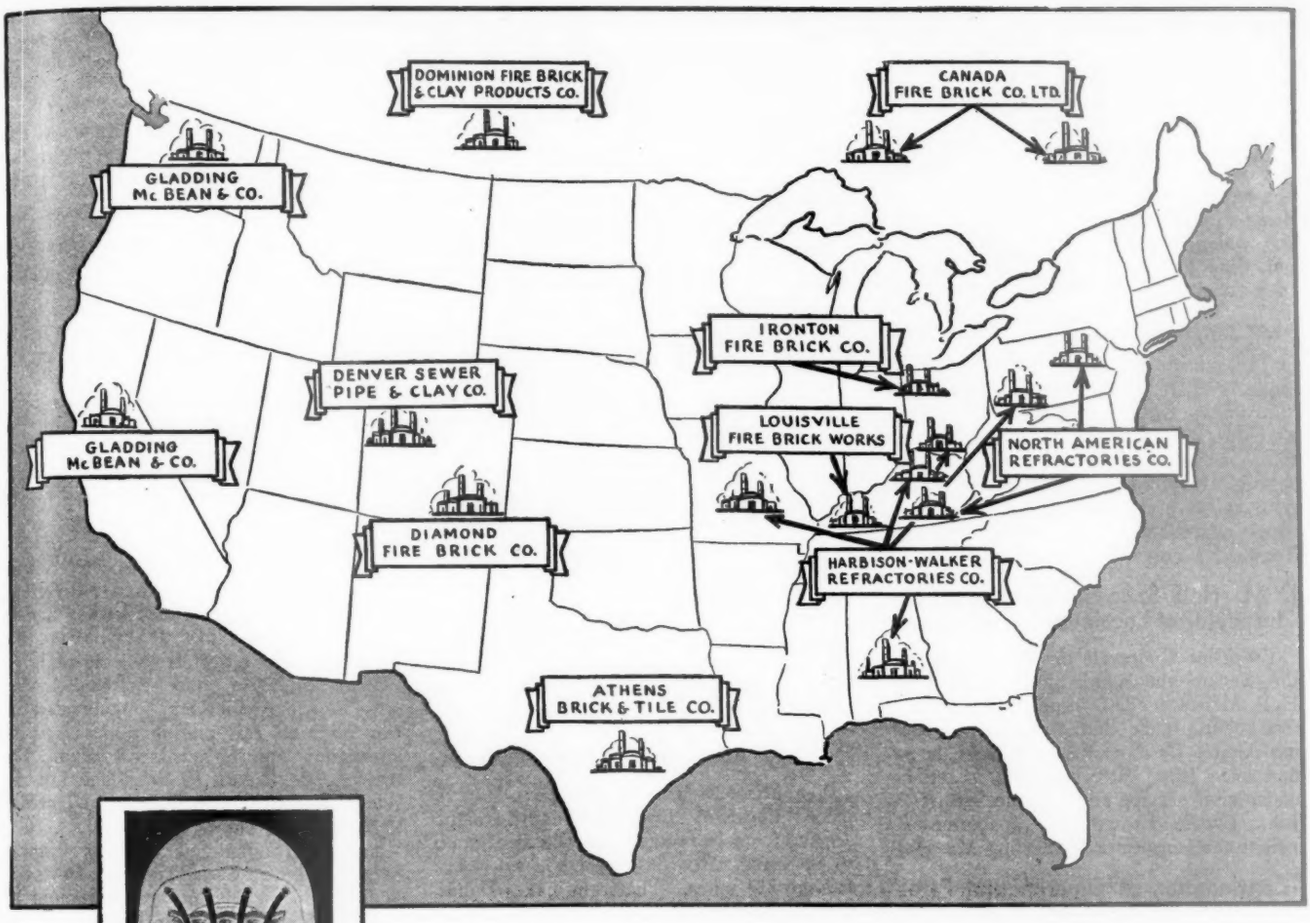
DOMINION FIRE BRICK & CLAY PRODUCTS CO.
CANADA FIRE BRICK CO. LTD.
GLADDING Mc BEAN & CO.
IRONTON FIRE BRICK CO.
DENVER SEWER PIPE & CLAY CO.
LOUISVILLE FIRE BRICK WORKS
NORTH AMERICAN REFRACTORIES CO.
GLADDING McBEAN & CO.
DIAMOND FIRE BRICK CO.
HARBISON-WALKER REFRACTORIES CO.
ATHENS BRICK & TILE CO.

"Security Arch" Supply *Safeguards* Locomotive Service

The ready availability of Security Brick, at many plants conveniently located to serve the railroads, guarantees against needless delay in Arch maintenance.

How carefully the interests of the railroads have been safeguarded is indicated by the supply sources shown on the map above.

AMERICAN ARCH COMPANY
INCORPORATED
Locomotive Combustion Specialists
NEW YORK CHICAGO

cluding those in the Southern system. To meet a truck rate of 80 cents per hundred pounds the express company had proposed rates of 85 cents to Atlanta and 86 cents to Birmingham. The commission found that the service for which the rates were proposed would not be either express service nor transportation service rendered by the express company, but would be in fact freight service rendered by the Southern for which, under the interstate commerce act, the latter is obliged to file and publish in its own name the rates to be charged.

Southern's "Royal Palm" Expedited

The schedule of the Southern's "Royal Palm" between Jacksonville, Fla., and Cincinnati, Ohio, has been expedited so that the train now arrives in Cincinnati 50 min. earlier than formerly. The new schedule involves no change in the leaving time at Jacksonville, nor in the arrival times at Atlanta, Ga., and Chattanooga, Tenn.

J. M. Hall Succeeds Pack as Chief Inspector of Locomotives and Boilers

President Roosevelt on July 18 sent to the Senate the nomination of John M. Hall, assistant chief inspector of locomotive boilers, to be chief inspector, succeeding Alonzo G. Pack, who has held the office since July, 1918, and who is retiring under civil service rules at the age of 70. John Brodie Brown was appointed assistant chief inspector succeeding Mr. Hall.

Continuation of Experimental Fares Proposed

The Atlantic Coast Line and other southern roads have petitioned the Interstate Commerce Commission for a further extension for six months, from September 30 to March 31, 1936, of the modifications in commission orders relating to intrastate fares to enable them to continue for that period the experimental basis of passenger fares now in effect, which includes the elimination of the surcharge. Western roads have also asked for a similar extension as to their experimental fare basis.

R. F. C. Loans to Railroads

A report of the Reconstruction Finance Corporation for the fiscal year ended June 30 shows a total of 21 loans authorized during the year to 17 railroads, totalling $130,975,798, although only $75,185,328 was disbursed during the fiscal year. The outstanding balances of all railroad loans on June 30 aggregated $414,344,463 and, while the aggregate market or appraised value of all collateral was $576,760,442, the report states that loans to 13 roads, aggregating $86,010,033, figured on a basis of present quoted values, would be under-collateralized by approximately $34,000,000.

The Largest Tour

The largest single tour to be operated by the Chicago & North Western-Union Pacific department of tours in several years left Chicago on July 21, when more than 200 vacationists boarded a special train for California. Tour business up to July 20 this year has been far ahead of that for the entire season of 1934 and, if the present rate of bookings is maintained, 1935 will be at least 50 per cent ahead of 1934, and the largest for several years. On all western railroads travel to the West Coast during the first six weeks of the summer season has been 27½ per cent greater than during the same period last year.

Second Section of Hiawatha to Be Run from Minneapolis

On July 28, a second section of the Hiawatha will be put on from Minneapolis, Minn., to Chicago, carrying two tour parties of 200 persons. The train, consisting of a diner, a solarium parlor car and three coaches, will be run from Chicago on July 27 to Minocqua, Wis., as a second section of the Hiawatha. From this point it will be deadheaded to Minneapolis, whence it will be operated to Chicago. The train will be hauled by a 4-6-4 type locomotive from Minneapolis to LaCrosse, Wis., and from LaCrosse to Chicago by the Pacific type locomotive which has been converted into an oil burner.

On the same day another special train of 13 cars will carry a tour party of 285 persons from St. Paul to Chicago on a schedule of 9 hr., leaving St. Paul at 8 a. m. and arriving in Chicago at 5 p. m.

Katy Adds Fast Freight Train

The Missouri-Kansas-Texas, on July 8, placed the Katy Rocket in daily freight service from Ft. Worth and Dallas, Texas, to St. Louis, Mo., on a schedule of 34 hr. for the 757 miles. The train leaves Dallas and Ft. Worth shortly after the close of business each day and arrives in St. Louis the second morning in time for delivery at that point and in time to make connections with freight trains departing from St. Louis during the morning hours. Splitting at Parsons, Kan., the train provides midnight arrival at Kansas City. Shipments of fruits and vegetables from the lower Rio Grande Valley and from California-Arizona points by way of Ft. Worth form a goodly portion of the Rocket's lading.

The Importance of Goggles

The Committee on Education, of the Safety Section, A.A.R., for the month of August, has issued circular No. S-446, recommending emphasis for this month on the importance of wearing goggles; goggles of different kinds and for different classes of work. The salient feature of the circular is a portrait of a machinist, who, wearing goggles, still had a narrow escape in an accident. The circular consists mainly of a condensed essay on the different kinds of work where goggles are necessary—machine work, welding, track work and even train service—with notes on different features required in goggles for different classes of work.

Export Stations for Latin America Air Express Established in Canada

Twenty Canadian offices of Railway Express Agency on July 15 became export stations for the international air express service to Central and South America offered by Railway Express and Pan American Airways, according to an announcement by J. H. Butler, general manager of the express organization at New York. The new service permits shipments to be made between Canadian and Latin American points at speeds three to thirty times faster than was hitherto possible, through the co-ordination of Canadian rail express, United States rail and air express and the international air lines. Shipments from the Canadian cities travel through the United States "in bond" via Railway Express Agency, which acts as a bonded carrier on both rail and air lines. At the international air terminals of Miami, Fla., Brownsville, Texas, El Paso, and Los Angeles, Cal., packages will be transferred to Pan American planes for delivery.

The local offices of Railway Express Agency at the 20 Canadian points have been equipped to handle in and outbound air express shipments under the "airwaybill," a simplified shipping document accepted by the various Latin American countries in lieu of documentation previously required.

Signaling Statistics for 1935

The total mileage of railroad in the United States operated under the block system, on January 1, 1935, with cognate data concerning kinds of signal systems, details of apparatus and other particulars, as recorded by the Interstate Commerce Commission, was the subject of an article in the *Railway Age* in the issue of July 6, page 23, the material having been edited and issued in mimeographed form by Mr. Burt T. Anderson. The Interstate Commerce Commission, however, has concluded to publish these data and, as a supplement to the article of July 6, there is here presented the accompanying table,

Miles of Road Block Signaled—Increases and Decreases in Year 1934

Items Less Than 10 Miles Omitted

Name of Railroad	Automatic Miles of road Inc.	Automatic Miles of road Dec.	Non-automatic Miles of road Inc.	Non-automatic Miles of road Dec.
Baltimore & Eastern	..	..	..	71.0
Baltimore & Ohio: Eastern Lines	18.8	..	36.9	..
Western Lines	.1	..	11.7	..
Chesapeake & Ohio	2.0	..	..	13.5
Chicago & North Western	..	45.0	1.7	..
Chicago, Burlington & Quincy	..	2.4	..	142.3
Chicago, Milwaukee, St. Paul & Pacific	2.4	..	..	16.4
Chicago, St. Paul, Minneapolis & Omaha	..	..	..	631.2
Missouri Pacific	..	..	..	125.5
New York Central	1.5	..	..	195.5
Northern Indiana	..	46.7	..	..
Pennsylvania	..	1.6	..	75.5
Pennsylvania-Reading Seashore Lines	..	3.2	..	35.7
Southern	.1	..	..	41.9
Southern Pacific; Pacific System	..	..	..	108.4
Virginian	..	..	..	15.2
Wabash	..	.3	43.6	..
Western Maryland	12.3	..	..	..

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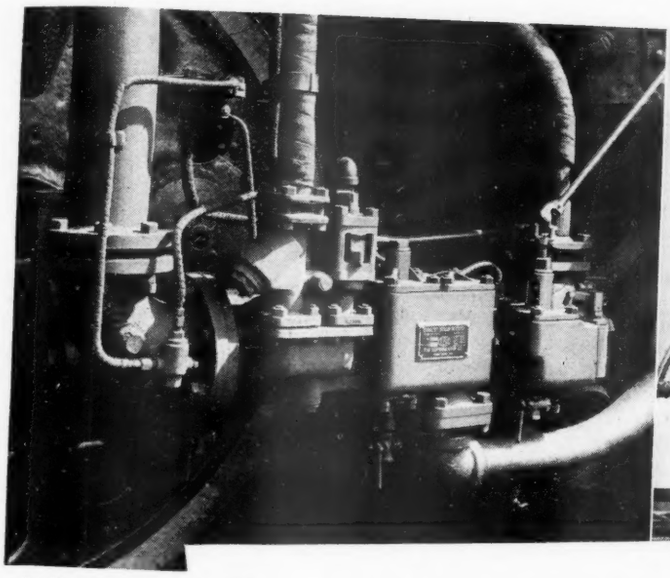

Application of Elesco Exhaust Steam Injector

Application of Elesco Feed Water Heater

Reclaiming the HEAT in WASTE Exhaust Steam . . .

A Practical Means for INCREASING Boiler Capacity and DECREASING Fuel Consumption

Marked improvement in locomotive operation has been brought about by the use of exhaust steam for preheating feed water — by reclaiming and utilizing waste heat. It is sound in principle and is a logical step for greater efficiency.

The basic reason for feed water heating is to reclaim the heat in a portion of the exhaust steam and return it to the boiler in the feed water; thus reducing by like amount the heat required from the firebox to raise the temperature of the water entering the boiler to that of steam at the prevailing pressure.

The principal benefits from exhaust steam feed water heating are:

Increased boiler capacity
Increased cylinder horsepower
Increased overall boiler efficiency
Increased tender capacity
Increased fuel economy

These improvements in operation and economy account for the wide application by American railroads of both types of Elesco feed water heating equipment. They provide improved operation for new power. They give new life to existing underboilered locomotives. They pay while they save.

Investigate their possibilities on your power.

ELESCO

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, Inc.

60 East 42nd Street
NEW YORK

Peoples Gas Building
CHICAGO

A-987

Canada: The Superheater Company, Limited, Montreal

Superheaters - Feed Water Heaters - Exhaust Steam Injectors - Superheated Steam Pyrometers - American Throttles

not included by Mr. Anderson, showing the 17 roads, with figures for each, on which there was in the year 1934 a considerable increase or decrease in road operated under the block system.

The government report now issued contains the tables formerly (up to January, 1932) issued annually in a printed pamphlet, but they now appear in typewritten form, making a large document.

Table No. 8, three pages, shows all installations of centralized traffic control, 35 roads, 151 installations; total length of road, 1,261 miles; number of passing sidings, 244.

The usual list of railroads showing mileage of lines on which train orders are transmitted by telephone and by telegraph takes five pages; 93,907 miles telegraph and 151,098 miles telephone. Total miles of road reported, 237,126, many sections using both telegraph and telephone. The publication of this annual table was begun years ago, when the telephone was in its infancy and the telegraph was universal; but today the items in which the telephone column is blank are few and far between; while the telegraph column contains a great many blanks.

Co-ordinator Eastman Meets with Railroad Executives

Co-ordinator Eastman held a long conference on July 19 with members of the board of directors of the Association of American Railroads and of the three Regional Railroad Co-ordinating Committees which represent the railroads in accordance with the emergency railroad transportation act. The board was holding its monthly meeting in Washington and Mr. Eastman expressed a desire to take advantage of the opportunity to confer with the committees in a joint meeting, as most of the directors of the association are also members of the committees. It was stated that the discussion dealt with the general railroad situation and the progress being made by the railroads in their studies of the various reports recommending co-ordinated action by the railroads to accomplish economies. Mr. Eastman indicated a desire to bring about action as early as possible in the direction of accomplishing some of the economies proposed and said afterward that he was pleased with the attitude shown by the executives toward co-operating with the program. It is understood that the railroad committees are concentrating at this time on some of the proposals made in the Merchandise Report of the Section of Transportation Service.

At the meeting Fairfax Harrison, president of the Southern, was elected a member of the executive committee, and C. E. Denney, president of the Erie, was elected a director, both succeeding the late J. J. Bernet.

Eastern Car Foreman's Field Day at New Haven

The Eastern Car Foreman's Association held its third annual field day and golf tournament at the Race Brook Country Club at New Haven, Conn., on July 18. Approximately 240 members and guests were in attendance. The program for that day, which was designated "New Haven Day," was sufficiently varied to be of interest to the majority of those present. Golf events and putting contests for the golfers and non-golfers, as well as quoits, bridge and numerous other attractions provided entertainment from early morning until after the dinner in the evening at 7:30 p. m. Prizes were awarded for the many events and a "Grand Mystery Drawing" at the close of the dinner brought prizes to many who had not been winners in the regular events.

Of the prizes given for regular events the principal ones were as follows: Tournament Golf—Class A—Low gross, L. H. Foster; low net, J. Howland. Class B—Low gross, R. Sonquist; low net, J. Schlintz. Class C—Low gross, P. E. Pfeiffer; low net, S. L. Poorman. Kickers' prize, V. W. Ellet; low gross prize, T. M. Ferguson; putting contest for golfers—First prize, J. T. Daley; second prize, A. E. Calkins. Quoits—First prize, A. J. Pretyman; second prize, J. Wiley. Bridge Tournament—First prize, Harold Chamberlin; second prize, Lee Peabody; third prize, J. Marcuso. Putting Contest for Non-golfers—First prize, J. G. Platt; second prize, G. Allison. Hole-in-one, H. Hughes and J. L. Metz; longest drive, C. Jordan; second longest drive, J. Delahanty.

The general arrangements for the outing were under the direction of J. P. Egan, president of the association; F. H. Becherer, general chairman; A. E. Calkins and R. Sonquist, vice-chairmen, and 11 committee chairmen.

Bill To Eliminate Long-and-Short-Haul Provision Reported

A favorable report on the bill H. R. 3263 to eliminate the long-and-short-haul clause from Section 4 of the interstate commerce act, with an amendment, was filed with the House on July 22 by Representative Pettengill, of Indiana, of the House committee on interstate and foreign commerce, and the bill is expected to be considered in the House next week. The amendment is intended to place definitely on the rail carriers the burden of proof to justify a lower rate for the longer distance as reasonable, fair, non-preferential, non-prejudicial, and non-discriminatory as between persons, companies, firms, corporations, localities, or any particular description of traffic. In other words, the committee says, the fourth section as now proposed to be amended is to be construed in the light of other provisions of the interstate commerce act, all of which continue in full force and effect, for the purpose of protecting the legitimate interests of every one concerned. In giving its reasons why the bill should be enacted the committee said in part:

"If the railroad at one time had, they no longer have a monopoly in the transportation field. Since 1920 there has been a tremendous growth of competitive forms of transportation. The intercoastal steamship lines now concededly have a practical monopoly of all traffic transported between the seaboards with the exception of perishables, and reach far inland on westbound traffic, charging lower rates on traffic originating at the interior than charged on traffic at or in the vicinity of the port. This has resulted from the long-and-short-haul provision of the fourth section, which evidently the commission has interpreted to be the meaning of its provisions as a matter of congressional policy. Principally through government expenditures providing rights-of-way, large amounts of traffic have been diverted to competitive forms of transportation on inland waterways, including rivers and canals. The government itself engages in a competitive operation on the Mississippi river. Since 1920 the competition of millions of trucks and buses throughout the country has developed, as has also the competition of pipe lines transporting petroleum, gasoline and natural gas, supplanting other forms of fuel, including coal. Electric lines ship 'coal by wire.'

"The record is replete with illustrations of efforts of these railroads to serve the needs of their patrons by meeting competition through applications under the provisions of the fourth section for relief from its long-and-short-haul prohibition since 1920. The ones of major importance have been denied, and where applications have been granted, in many instances, such conditions have been attached as to render the relief granted of no benefit. Much delay and expense are involved in making such applications to the commission. Numerous instances were cited where the time consumed before final decision amounted to many months and in a number of instances several or more years. It may be that such delay is necessary in the administration of the existing law. However this may be, it is evident that railroads are handicapped and handcuffed so that they cannot avoid substantial loss of traffic to competitive forms of transportation under this cumbersome procedure.

"In all instances, with the exception of where a departure from the long-and-short-haul prohibition of section 4 is involved, the railroads under the law have the right to initiate, publish, and file rates with the Interstate Commerce Commission without first obtaining its consent. *There is no reason why this should not be done in all instances. All rates will be subject to the complete control of the commission if this bill is enacted, against any violation of the provisions of the interstate commerce act.*"

Equipment and Supplies

LOCOMOTIVES

THE UNITED FRUIT COMPANY is inquiring for one locomotive of the 2-8-2 type, for export to Cuba.

PASSENGER CARS

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one light-weight chair car.

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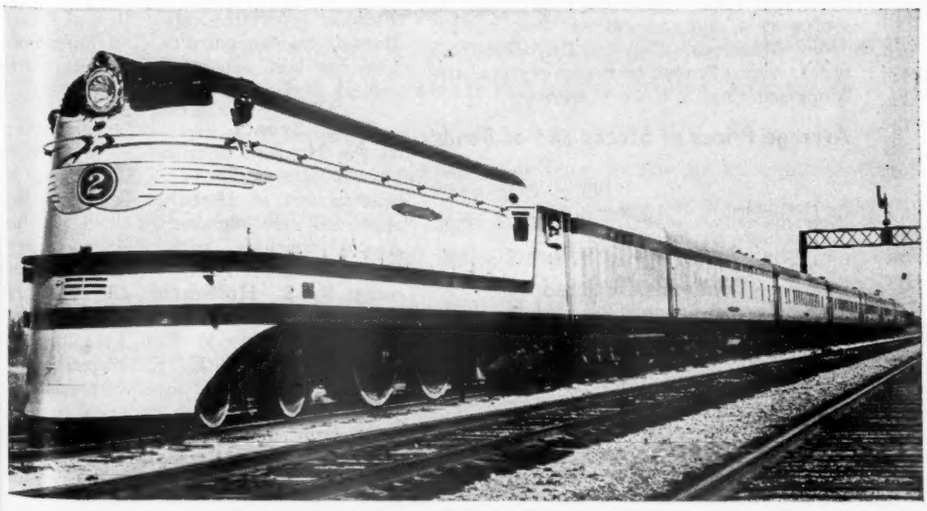
ALCO

REVENUE

In the last analysis the amount of revenue return is the best measure of the worth of an investment made to improve a particular service. . . The "Hiawatha" carried 9,258 revenue passengers in the first 19 days of its operation — May 29th to June 16th. On Saturday, June 15th, the first day that the seventh car was added to this train, 405 revenue passengers were carried on the northbound run and 326 on the southbound run, a total of 731 passengers in one day. . . The extra car is still being retained and an added stop is being made at Red Wing. And the locomotive goes right on making the same schedule with ease.

AMERICAN LOCOMOTIVE COMPANY



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Supply Trade

Joseph M. Bandish, midwestern sales manager of the **Durametallic Corporaton,** Kalamazoo, Mich., with headquarters at Chicago, has resigned.

Harry W. Beedle has been appointed manager of the Boston (Mass.) branch office of the **Electric Storage Battery Company.** He had been assistant manager there since 1920.

The National Railway Appliances Association will send out space contracts and floor diagrams for the twenty-fifth annual exhibit to be held at Chicago on March 9-12, 1936, on or about October 1, 1935, and will award space on November 12.

OBITUARY

Albert C. Lehman, chairman of the board and founder of the original unit of the Blaw-Knox Company, died on July 24, at the age of 56.

TRADE PUBLICATION

ALUMINUM AND ITS ALLOYS.—Fundamental information concerning alloys is contained in the revised edition of Alcoa Aluminum and Its Alloys recently issued by the Aluminum Company of America, Pittsburgh, Pa.

Construction

BALTIMORE & OHIO.—The Tri-State Engineering Company, Waynesburg, Pa., has been given a contract by the United States Engineer office, Zanesville, Ohio, for the relocation of 1.86 miles of the B. & O. in the vicinity of the Dover reservoir in Ohio, at a cost of about $127,200. The Elmer Vogt Paving Co., Massillon, Ohio, was the low bidder for the work of relocating 6.13 miles of this road in the Bolivar reservoir area in the same state.

PENNSYLVANIA.—The United States Engineer office, Zanesville, Ohio, has awarded a contract to Edward Peterson, Omaha, Neb., for the relocation of 3.57 miles of the Pennsylvania's line in the vicinity of the Wills Creek reservoir in Ohio, at a cost of $415,945.

TOLEDO, PEORIA & WESTERN.—A contract has been placed with the Ross & White Company, Chicago, for an N. & W. type electric locomotive cinder plant, which is to be constructed immediately at East Peoria, Ill.

WHEELING & LAKE ERIE.—The Arundel Corporation, Baltimore, Md., has been given a contract by the United States Engineer office, Zanesville, Ohio, for the relocation of 14.6 miles of this company's line in the vicinity of the Dover reservoir in Ohio. This work will cost about $1,640,000.

Financial

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Hearing On Reorganization.*—The Interstate Commerce Commission has announced a hearing to be held at Washington on August 5, before Director Sweet of its Bureau of Finance, on the plan or reorganization proposed by this company in connection with its petition filed in court under the bankruptcy law.

DELAWARE, LACKAWANNA & WESTERN.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has modified its order of May 2, 1934, so as to limit to not exceeding $3,619,000, the amount of equipment-trust certificates of 1934, series A, in respect to which this road is authorized to assume obligation and liability and also to permit the temporary certificates to be amended by the applicant's waiving the right of redemption. The Public Works Administration which holds all the outstanding temporary series A certificates, has requested the elimination therefrom of the provision that the certificates are subject to redemption in whole or in part at the option of the applicant on any dividend date.

KANSAS & OKLAHOMA.—*Abandonment.*—The Interstate Commerce Commission has authorized this road to abandon the operation, as to interstate and foreign commerce, of its entire line extending from State Line, Kans., to Woods, 19 miles.

MISSOURI PACIFIC.—*Mortgage trustee.*—The appointment by the Missouri Pacific of the Manufacturers Trust Company, New York, as trustee of the railroad's first and refunding mortgage five per cent bonds, was approved by the federal district court at St. Louis, Mo., on July 20. The bank succeeds the Guaranty Trust Company, which resigned on July 20 as trustee without giving reason.

MONESSEN SOUTHWESTERN.—*Proposes to Operate as Common Carrier.*—This company has applied to the Interstate Commerce Commission for a certificate authorizing it to operate in interstate commerce as a common carrier over its line from Monessen, Pa., to Pricedalte, 6.5 miles, with a branch to the property of the Monessen Coal & Coke Company.

Average Prices of Stocks and of Bonds

	July 23	Last week	Last year
Average price of 20 representative railway stocks..	35.25	34.78	37.02
Average price of 20 representative railway bonds..	74.40	74.71	76.23

Dividends Declared

Chestnut Hill.—75c, quarterly, payable September 3 to holders of record August 20.

Cincinnati Inter-Terminal.—Guaranteed 1st preferred, $2.00, semi-annually, payable August 1 to holders of record July 20.

Delaware & Bound Brook.—$2.00, quarterly, payable August 19 to holders of record August 13.

Louisville & Nashville.—$1.00, payable August 24 to holders of record July 31.

Oswego & Syracuse.—$2.25, semi-annually, payable August 20 to holders of record August 8.

Passaic & Delaware.—$1.25, semi-annually, payable August 1 to holders of record July 22.

Syracuse Binghamton & N. Y.—$3.00, quarterly, payable August 1 to holders of record July 22.

Railway Officers

EXECUTIVE

Further Changes on National Railways of Mexico

Further changes among the executive personnel of the National Railways of Mexico have been made as follows:

Jose Laguardia has been appointed treasurer to succeed **Juan R. Platt.**

Francisco Barba has been made chief of the personnel department.

J. M. Velasco and **Guillermo Jones** have been appointed assistant general purchasing agents.

Pelagio G. Manjarrez has been made chief of the train auditor's and special-car department.

Dr. Francisco Gutierrez Mejia has been appointed chief surgeon, succeeding **Dr. F. J. Campos.**

All these officers are located at Mexico, D. F.

In addition, **Juan G. Alvarado** has been appointed superintendent of the Centro division, with headquarters at Aquascalientes, Aquas, succeeding **Alberto M. Bribiesca,** who has been transferred to the Mexico division.

H. L. Baird, general freight agent on the New York, Chicago & St. Louis, has been appointed assistant to vice-president, traffic, with headquarters as before at Cleveland, Ohio.

OPERATING

B. T. Chappell, general superintendent of the British Columbia district of the Canadian National, with headquarters at Vancouver, B. C., has returned to his duties after an absence of almost two months because of illness.

W. A. Hurley, assistant superintendent of the Boston division of the New York, New Haven & Hartford, has been appointed superintendent of that division at Boston. T. M. Rawley has been appointed assistant superintendent at Boston. **B. F. Bardo,** superintendent of electric transmission, has been appointed assistant superintendent at Boston.

T. M. Spence, assistant superintendent on the Houston division of the Southern Pacific Lines in Texas and Louisiana, with headquarters at Houston, Tex., has been appointed superintendent of the Dallas and Austin divisions, with headquarters at Ennis, Tex., and Austin. Mr. Spence succeeds **B. S. Holliman,** who has been transferred to the San Antonio division, with headquarters at San Antonio, Tex., where he replaces **C. R. Morrill,** who has retired. **J. J. Moore,** trainmaster at Victoria, Tex., has been appointed assistant superintendent, with the same headquarters, to succeed **J. D. Kinsler,** who has been transferred, with headquarters at Ennis and Austin, where he replaces **T. H. Meeks.** Mr. Meeks has been transferred to Houston to succeed Mr. Spence. **E. B.**

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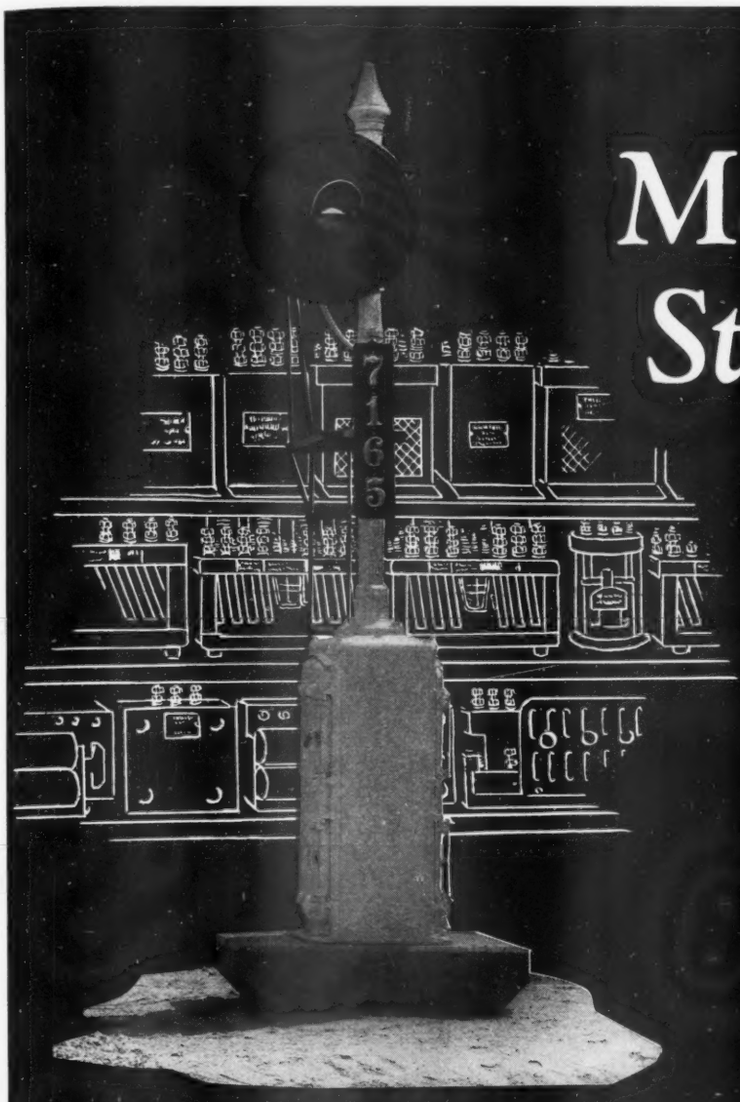

Make Stores Stocks Help:

★ Improve Train Performance

★ Reduce Operating Cost per Gross Ton Mile

★ Increase Train Load and Speed

How? Simply by maintaining in your stocks inventory a complete line of "Union" signal units, replacement parts and accessories. For operating statistics prove that increased efficiency in freight train performance parallels the increase in road miles signaled; that roads showing the greatest reduction in cost per ton mile and the greatest acceleration in traffic, are among those well signaled; that the greatest average increase in train load occurred on roads utilizing signaling in an intensive manner. Don't jeopardize this operating efficiency. Purchase and store only genuine "Union" made parts and units for the maintenance of "Union" Signal Systems. » » » » »

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SWISSVALE, PA.

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

Kysh has been appointed trainmaster at Victoria to replace Mr. Moore. These changes will become effective on August 1.

TRAFFIC

F. H. Law, assistant to vice-president (traffic) of the Illinois Central, with headquarters at Chicago, has been appointed to the newly-created position of general traffic manager. He will have the same duties as heretofore.

W. J. Courtney, assistant general freight agent on the New York, Chicago & St. Louis, has been appointed general freight agent, with headquarters as before at Cleveland, Ohio, succeeding **H. L. Baird,** who has been appointed assistant to vice-president, traffic. **B. A. Gaetz,** chief of tariff bureau, has been appointed assistant general freight agent (rate legislation and tariff matters) to succeed Mr. Courtney, and the position of chief of tariff bureau has been abolished. **L. Gallagher** has been appointed assistant general freight agent (rate legislation and tariff matters), with headquarters also at Cleveland.

ENGINEERING AND SIGNALING

R. H. Carter, supervisor of track on the Illinois Central, with headquarters at Chicago, has been appointed acting division engineer, with the same headquarters, to relieve **J. J. Desmond,** who has been granted a leave of absence because of illness.

ELECTRICAL

H. C. Griffith, whose appointment as electrical engineer for the Pennsylvania was noted in the *Railway Age* of July 6 was born at New Enterprise, Bedford County, Pa., in 1890 and attended the Johnstown, Pa., high school. He was graduated from Lehigh University in 1914 as an electrical engineer. After taking the

H. C. Griffith

special apprenticeship course of the Westinghouse Electric & Manufacturing Company at East Pittsburgh, he entered the service of the Pennsylvania in 1915, holding various positions until 1929 when he was promoted to assistant electrical engineer. Mr. Griffith has since that time been closely identified with the electrification program between New York and Washington.

PURCHASES AND STORES

J. G. Warnecke, district storekeeper of the Burnside (Chicago) store of the Illinois Central, has been appointed division storekeeper at Markham (Chicago), with jurisdiction over a newly-created division store that has been established to handle material for all departments of the Chicago Terminal and Illinois divisions. The district store at Burnside has been abolished. Hereafter material for all departments on the Springfield division, which heretofore has been furnished from the Burnside store, will be supplied from the divison store at Centralia, Ill., where **J. W. Cockrill** is division storekeeper.

MOTOR TRANSPORT

Edward D. Westcott, superintendent of the Maine Central Transportation Company, with headquarters in Portland, Me.,

Edward D. Westcott

has been promoted to the position of general manager, with the same headquarters. The transportation company recently extended its lines in Maine considerably and Mr. Westcott will have charge of all phases of the Maine Central's highway operations throughout the state. Mr. Westcott entered the service of the Maine Central in 1918 as clerk, later serving successively in the manager's office and in the car service department. He then became traveling car agent and since 1931 has been superintendent of the Maine Central Transportation Company.

Everett K. Goddard, assistant to superintendent of the Maine Central Transportation Company, has been appointed superintendent, with headquarters at Portland, Me. Mr. Goddard was born in Portland, Me., on September 30, 1906, and entered the service of the Maine Central in May, 1927, as a clerk in the auditor of freight receipts office. He was advanced successively through the office of the auditor of payrolls and then to the office of the vice-president and general manager. Mr. Goddard was transferred to the office of the superintendent of the Maine

Everett K. Goddard

Central Transportation Company in October, 1931, and since that time had served as assistant to the superintendent.

SPECIAL

C. A. Lichty, a past-president of the American Railway Bridge and Building Association, who has served as secretary of that organization for the last 25 years, retired on July 1 as a material inspector in the purchasing department of the Chicago & North Western, with headquarters at Chicago. At the time of his retirement Mr. Lichty had been connected with the North Western continuously for 43 years.

OBITUARY

James R. Groves, who retired in 1917 from the position of superintendent of machinery on the Colorado Midland, died recently in Grand Junction, Colo., at the age of 88 years. Mr. Groves, who served his apprenticeship in the Pennsylvania's Altoona (Pa.) shops, went West in 1869 and had also been superintendent of machinery on the St. Louis-San Francisco and the Denver & Rio Grande Western.

James D. McDonald, who retired in 1923 as general passenger agent for the Grand Trunk (now part of the Canadian National), with headquarters at Chicago, died at that point on July 20. Mr. McDonald was born on August 27, 1855, and entered railway service in 1868, as a messenger with the Grand Trunk. After serving successively as assistant ticket agent at Toronto, Ont., ticket agent at Buffalo, N. Y., and as city passenger and ticket agent at Buffalo, Mr. McDonald was promoted to district passenger agent at Toronto in May, 1902. In March, 1911, he was made assistant general passenger agent at Chicago and on May 1, 1919, he was further promoted to general passenger agent, with the same headquarters, which position he held until his retirement.